

DECEMBER, 1907.

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OF THE

Royal United Service Institution.



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Editor - Captain H. GARBETT, R.N. (Retired),

To whom all communications should be addressed.

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WHITEHALL, S.W.**

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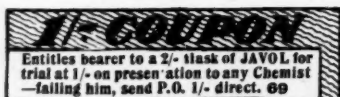
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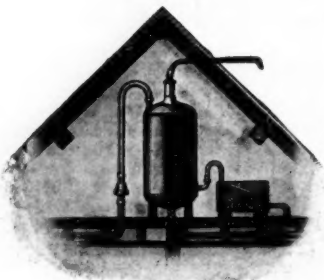
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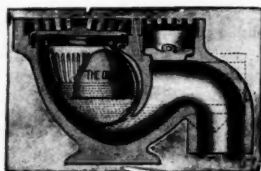
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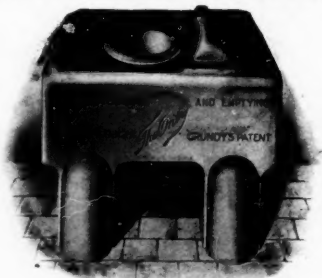
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Capt. C. Evans, R.F.A.	Capt. H. S. Williams, Dorsetshire Regt.
Capt. G. C. Merrick, D.S.O., R.G.A.	Capt. B. D. L. G. Anley, D.S.O., Essex Regt.
Capt. W. H. Moore, D.S.O., R.G.A.	Capt. R. S. Hamilton-Grace, Durham L.I.
Capt. J. P. Mackesy, R.E.	*Capt. H. F. Baillie, Seaforth Highlanders.
Capt. B. W. B. Bowdler, R.E.	Capt. P. S. Allen, Gordon Highlanders.
Capt. F. D. Farquhar, D.S.O., Coldstream Gds.	Capt. J. K. Cochrane, Leinster Regt.
*Capt. R. G. Parker, Royal Lancaster Regt.	Capt. R. L. Ricketts, Indian Army.
Capt. G. N. T. Smyth-Osbourne, Devonshire R.	Capt. W. K. Bourne, Indian Army.
Capt. V. H. M. de la Fontaine, East Surrey R.	Capt. F. W. Lumsden, Royal Marine Artillery.
Capt. and Brev. Major F. R. Hicks, Hamps. R.	

And the following received nominations:—

Captain H. C. Bickford, 6th Dragoon Gds	Captain H. Wake, D.S.O., K.R.R. Corps.
Captain C. J. C. Grant, Coldstream Gds.	Captain and Brev. Major N. J. G. Cameron,
Captain W. D. Wright, V.C., R.W. Surrey R.	Cameron Highlanders.
Captain C. H. Harington, D.S.O., Liverpool R.	Captain G. P. Grant, D.S.O., Indian Army.

SANDHURST, JUNE, 1906.

FIRST ... A. G. Armstrong ... 5,541	129th ... R. P. T. Ffrench ... 3,827
48th ... H. G. Gauntlet ... 4,515	181st ... C. W. Molony ... 3,445
67th ... D. Macdonald ... 4,299	186th ... P. J. I. Synnott ... 3,386
89th ... W. G. Bagot-Chester ... 4,115	190th ... R. M. Aymer ... 3,339
90th ... A. G. Otley ... 4,109	197th ... O. Gough ... 3,262
93rd ... A. P. Williams-Freeman ... 4,091	201st ... P. W. J. A. Stomm ... 3,151
115th ... D. M. Black ... 3,940	213th ... B. W. Molony ... 2,881
125th ... W. J. King-King ... 3,846	

WOOLWICH, JUNE, 1906.

31st	J. S. Barkworth	6,483
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DECEMBER, 1905.

SECOND ... H. G. MacGeorge ... 7,196	16th ... R. Crofton ... 6,330
FOURTH ... G. Walton ... 7,046	45th ... D. Stephenson ... 5,899
FIFTH ... H. A. Cox ... 6,967	54th ... J. Kennedy ... 5,711

This was the First Examination under the new regulations, and our pupils secured THREE out of the first FIVE places.

MILITIA COMPETITIVE, MARCH, 1906.

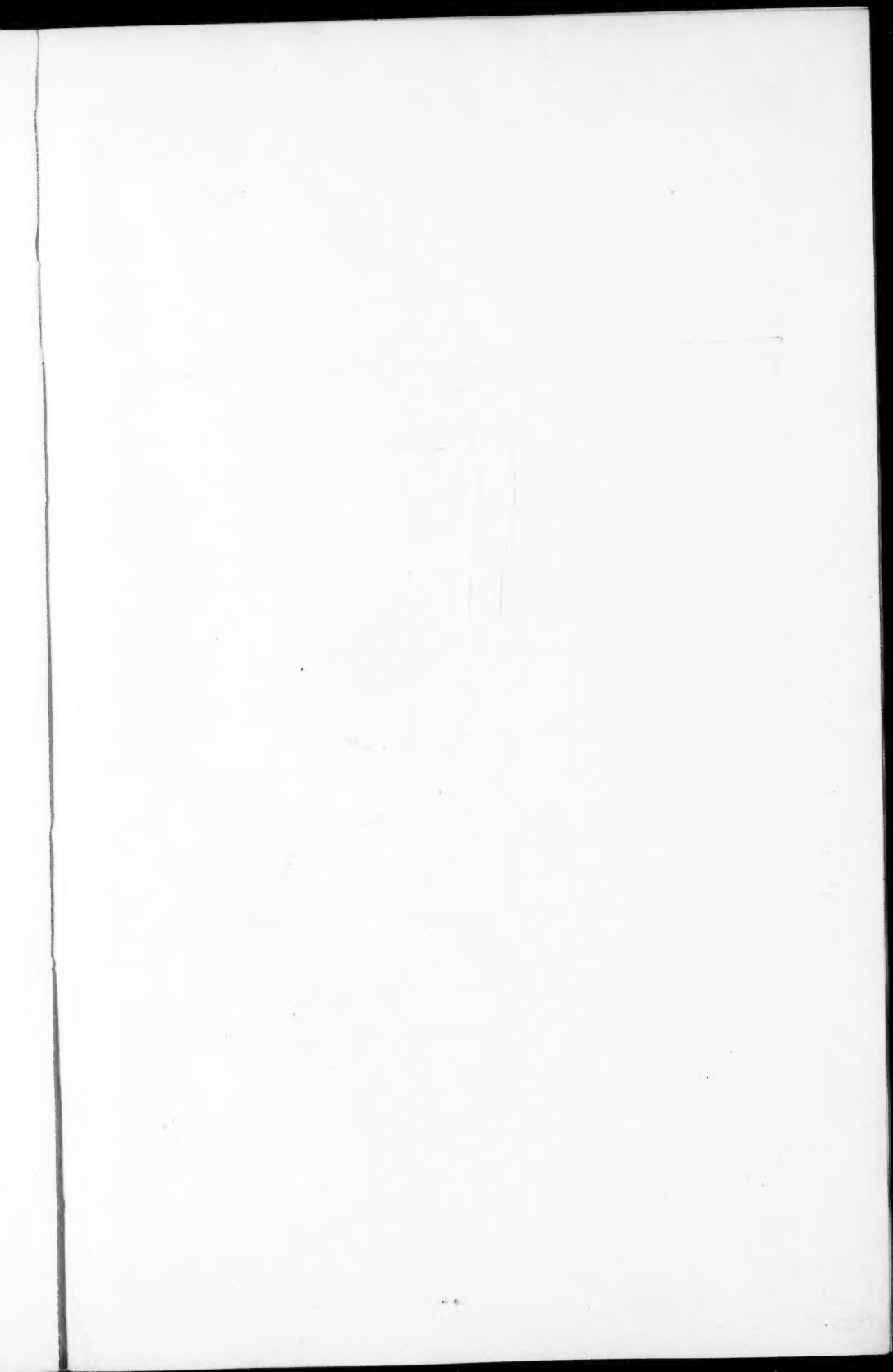
A. E. Hardy 2,304	W. F. Anderson 1,947
N. H. Hutcheson 2,105	D. C. Robinson 1,879
*F. D. Frost 1,949	F. A. Bowring 1,876

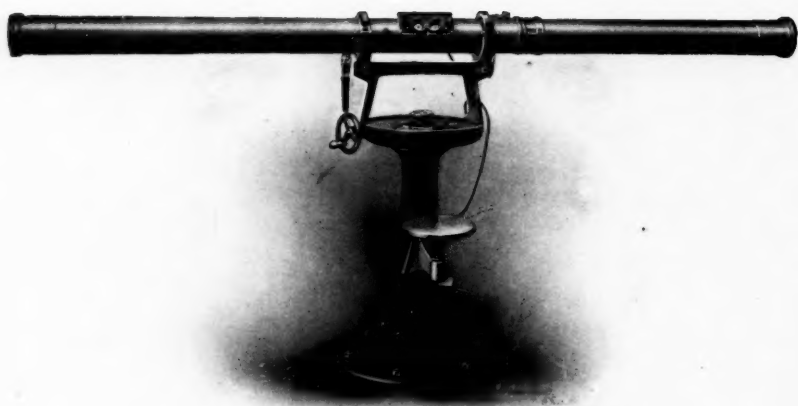
* Read partly at the Army Collège, Aldershot.

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THE JOURNAL

OF THE

ROYAL UNITED SERVICE INSTITUTION.

VOL. LI.

DECEMBER, 1907.

No. 358.

[Authors alone are responsible for the contents of their respective Papers.]

SECRETARY'S NOTES.

* 1. His Majesty the King has been graciously pleased to present to the Institution a bust of the late President (His late Royal Highness the Duke of Cambridge, K.G.), sculptured by Captain Adrian Jones.

2. OFFICERS JOINED.

Captain E. G. Thompson, 17th Lancers.
Lieutenant E. H. Bate, R.N.
Lieutenant L. S. Challis, 13th Middlesex V.R.C.
Captain R. Hutchison, 11th Hussars.
2nd-Lieutenant A. J. Woodhouse, R.F.A.
2nd-Lieutenant G. D. Rhodes, R.E.
Captain W. H. Maud, Somersetshire Light Infantry.
Captain E. V. Spencer, 1st Middlesex R.E. (V.).
Major G. F. Menzies, South Lancashire Regiment.
Lieutenant J. F. Allen, Loyal North Lancashire Regiment.
Lieut.-Colonel C. G. F. Fagan, late Indian Army.
Lieutenant E. A. Morton, R.F.A.
2nd-Lieutenant F. V. B. Witts, R.E.
Major-General Sir J. Willcocks, K.C.M.G., C.B., D.S.O.
Major W. M. Campbell, M.V.O., Royal Highlanders.
2nd-Lieutenant C. E. G. Davidson, East Kent Regiment.
Captain A. S. M. Peebles, I.M.S.
Major H. N. St. J. Maule, R.F.A.
Captain G. Lubbock, R.E.
Captain E. R. Collins, D.S.O., East Lancashire Regiment.
Captain A. B. A. Stewart, D.S.O., Seaforth Highlanders.
Lieutenant A. G. Frere, Indian Army.
Sub-Lieutenant C. S. Nairn, R.N.V.R.
Major A. C. Newsom, Army Vet. Corps.
Captain W. H. Bingham, Indian Army.

(No officer of the Militia or Imperial Yeomanry joined the Institution during the month of November.)

2. ADDITIONS TO THE MUSEUM.

1. Flag carried by the Assaulting Column under Brigadier-General Sir William Jones, K.C.B., at the Capture of Delhi, in September, 1857, and given by him to her late Majesty Queen Victoria.—*Given by His Majesty King Edward VII.*
2. An engraved head of a partizan of the early part of the 17th century.—*Given by B. E. Sargeant, Esq. (Assistant Curator of the Museum).*
3. A. Painting in Water Colours, by Thomas Dutton, of the Battle of Trafalgar, executed about 1865.—*Given by Arthur Brock, Esq.*
4. A Painting in Water Colours, executed by William Heath in 1826, of an Officer of the 5th (Princess Charlotte of Wales's) Dragoon Guards, in Review Order of the date.—*Given by Major E. S. Jackson, of the Dragoons.*

4. ADMISSION TO LECTURES.

Members are reminded that they are able to introduce only two visitors to each Lecture. When the member himself does not attend, it is necessary that the visitors should hand in his visiting card at the entrance.

5. COUNCIL.

The following members of the Council, having served three years, will retire in March, 1908 :—

Colonel W. Babbie, V.C., C.M.G., M.B.
 Lieut.-General R. S. S. Baden-Powell, C.B.
 Colonel the Duke of Bedford, K.G.
 Rear-Admiral A. M. Field, F.R.S.
 Admiral Sir R. H. Harris, K.C.B., K.C.M.G.
 Lieut.-Colonel C. E. H. Hobhouse, M.P.
 Lieut.-General H. D. Hutchinson, C.S.I.
 Major-General Sir G. H. Marshall, K.C.B.
 Captain Sir C. L. Ottley, K.C.M.G., M.V.O., R.N.
 Brigadier-General Sir H. S. Rawlinson, Bt., C.V.O., C.B.
 Captain E. J. W. Slade, M.V.O., R.N.

6. THE ROYAL UNITED SERVICE MUSEUM.

1. The Royal United Service Museum, which is under the control of the Council of the Royal United Service Institution, was founded by His Majesty King William IV. on 25th June, 1831.

2. The Museum was transferred to its present building in 1895, the building being the Banqueting House of Whitehall Palace and the scene of the execution of King Charles I. It was built by Inigo Jones between the years 1619 and 1622.

3. King Charles I. commissioned Rubens to paint the ceiling; it is divided by a rich frame-work of gilded mouldings into nine compartments, with allegorical subjects. The centre one represents the apotheosis of James I.; on either side of the ceiling are oblong panels expressing the Peace and Plenty, Harmony and Happiness, which, according to the painter's fancy, signalled the reign of James I.; and in the other compartments Rubens' patron, Charles, is introduced in scenes intended to represent his birth and his coronation as King of Scotland; while the oval compartments at the corners are intended, by allegorical figures, to show the triumph of Virtue over Vice. Rubens was paid by Charles I. the sum of three thousand pounds and received the honour of knighthood for his work, in which, according to Sir Godfrey Kneller, he was assisted by Jordaens. The sketches were made in England, probably on the spot, but the actual painting was executed and completed in Antwerp in the year 1635.

4. The ceiling has been five times restored. In the reign of George II. by Kent; in 1785 by Cipriani; in 1837 under the direction of Sir Robert Smirke (when the entire building was restored at a cost of £15,000 by Sir John Soane); again at a later date in the 19th century; and lastly in the years 1906 and 1907.

5. In July, 1906, by direction of the First Commissioner of His Majesty's Office of Works, a close inspection was made of the roof and of the ceiling, with a view to all necessary repairs being carried out.

The oil paintings, in places, were scarcely discernible owing to their dirty condition and to their uneven surface (the pictures were held up at intervals by canvas bands, and this caused an irregular surface, resembling that of a quilt). The light, too, acting on the uneven surface, gave the paintings the appearance of being damp. The pictures were suspended by iron hangers screwed to the tie beams of the roof: these iron hangers were locked into iron plates fixed on to the picture frames and on to the battens across them. The hangers were at intervals of about four or five feet. The backs of the picture frames were covered with an old-fashioned oilcloth to keep the paintings free from dust. The pictures were attached to the frames and battens at the back by pieces of canvas twisted round them at intervals of about three feet.

Upon the report being referred from the Office of Works to the Treasury, a sum of money was granted in November, 1906, for the restoration of the Rubens paintings and for the repairing, re-gilding, and renovation of the ceiling. The Museum was closed to the public, and a scaffolding, extending to the ceiling, was erected from the floor in November, 1906. When the paintings were taken down from the ceiling, upon examination some of them were found to be in a very bad condition, the canvas in many cases being broken away from the attachments on the frames. Before taking the paintings off the frames they were properly cleaned and made pliable, and covered over with tissue paper. After being taken off the old frames they were found to be attached to another canvas. On the back of this second canvas was a coating of what appeared to be glue and finely powdered glass, evidently put on as an attempt to stiffen the paintings and to prevent the sagging which was so visible from the floor. This old lining canvas was taken off and the backs of the paintings were scraped to remove all foreign substances which had adhered to them; the canvas was very carefully repaired, and the paintings (each one going through the same process) were carefully rolled up for safety whilst the frames were being repaired.

When the old frames were exposed they were found to be in a very dilapidated and worm-eaten condition, but it was decided that it would be better to retain them than make new ones, owing to the difficulty in procuring properly seasoned wood for such large frames. The old frames were carefully repaired and the worm-eaten parts were painted with a solution to kill the worm in the wood, and new timber intermediates were put in to strengthen the old wood. Owing to the damage done to the paintings by the original method of attachment to the frames, it was deemed advisable, after careful consideration, that they should be fixed in a different way, so as to obviate the sagging. One of the oval frames was prepared accordingly in the following manner:—

The frame was repaired and strengthened as before described, and the face planed down to a level surface. Laminated boarding half-an-inch thick and consisting of five pieces of wood, the outside boards being maple, was then screwed on to the frame and the intermediates with brass screws. The screws were countersunk and covered with a stopping used by picture restorers. Where the joints of the laminated boarding butted together, similar stopping was used and the face was carefully sandpapered until a smooth surface was obtained. This boarding was then covered with a strong canvas pasted down to it by means of hot irons, the canvas being then nailed to the edges of the frame. When this frame was completed it was kept for a time to see if there was any movement in the laminated boarding; it was then viewed by various experts.

After various meetings and consultations it was decided to prepare the whole of the frames in this manner, and to fix the paintings direct to this flat surface, and so prevent the sagging aspect which the pictures previously possessed, and which was so detrimental to their appearance.

The paintings were then unrolled, and after composition had been pasted on the back of the canvas they were carefully ironed until they

adhered to the frames, which had been prepared and finished in a similar manner to the oval one already described.

The tissue paper was then removed from the face of the paintings, which were stopped and touched up with colour where cracked and damaged. This was a work requiring great care and patience; when all the damaged portions had been restored the pictures were varnished.

As each painting was finished it was hoisted up on to the scaffold and then fixed to the roof timbers with iron hangers as originally attached. When the frames were repaired and strengthened it was found the laminated boarding added considerably to their weight. The oval pictures, when completed, weighed 8 cwt. each; they are 7 feet 10 inches wide and 19 feet 2 inches long; the square pictures, 1½ tons each, are 18 feet 2 inches wide and 24 feet 8 inches long; the large oval centre picture, 2½ tons, is 20 feet 8 inches wide and 32 feet 1 inch long; the side panels, 1 ton each, are 7 feet 11 inches wide and 39 feet 7 inches long. Thus the nine pictures and frames weigh nearly 9 tons.

The work was carried out under the direction of His Majesty's Office of Works: Right Hon. Lewis Harcourt, M.P., First Commissioner; Hon. Sir Schomburg McDonnell, K.C.B., C.V.O., Secretary; J. B. Westcott, M.V.O., Architect and Surveyor; A. W. Corney, Clerk of Works. The Trustees of the National Gallery and Sir Charles Holroyd, the Director, rendered valuable services in an advisory capacity.

The restoration of the pictures was commenced in December, 1906, and completed in August, 1907. The contractors employed in the execution of the work were Messrs. White, Allom & Co., of George Street, Hanover Square, Messrs. Izod & Son, of Great Portland Street, carrying out the actual restoration of the pictures. In September and October, 1907, the entire Hall was repainted, on the completion of which the Museum, which has been closed to the public since November, 1906, was re-arranged.

6. The entire Museum has been re-arranged and catalogued by the Curator (Lieut.-Colonel A. Leatham) and the Assistant-Curator (Mr. B. E. Sargeant). The models and cases have all been placed in such a way as to receive the greatest attention from the visitor. Throughout the re-arrangement the student of history has been always considered, and it is hoped that the facilities for study have been greatly augmented by the new positions of the exhibits. On entering the Upper Room by the Main Entrance all the Naval Exhibits are found on the left-hand side, the right side of the Hall being entirely devoted to the Army. Of these two main divisions there are again sub-divisions, until it is found that every exhibit has its position for some specific reason.

Where there are collections of models or exhibits each has been arranged so as to give the student the opportunity of comparison; for example, the collection of muskets is contained in chronological order in sixteen racks, and the same plan has been carried out in the case of all collections of exhibits.

The Lower Room, on account of the pillars, is of necessity cut into three sections. The right section, on entering, is devoted to models of artillery and details connected with ammunition. The centre section contains guns of historical interest, together with specimens of modern quick-firing guns. The section on the left is devoted to miscellaneous exhibits, the most recent addition being the figure-head of the "Royal George," Royal yacht, which His Majesty the King has lately contributed. An attempt has been made in this Lower Room to illustrate the costumes of the different regiments from earliest times by means of coloured engravings, and it is hoped to add to the collection periodically until a complete sequence has been obtained.

At the north end of the building and in the gallery are found the ethnographical collections, and on the main staircase are trophies of weapons taken during the Mutiny in India.

THIRD PRIZE ESSAY.

Subject:—

"WHAT IS THE RELATIVE VALUE OF SPEED AND ARMAMENT, BOTH STRATEGICALLY AND TACTICALLY, IN A MODERN BATTLE-SHIP, AND HOW FAR SHOULD EITHER BE SACRIFICED TO THE OTHER IN THE IDEAL SHIP?"

By Lieutenant E. V. F. R. DUGMORE, R.N.

Motto:—

"For the King, the Law, and the People."

Continued from November JOURNAL, p. 1844.

IT being settled that "A" is helpless against "B" in his attempt to cross the "T," it remains to be seen in what manner the greater speed may be utilised.

To consider the problem as affected by the "three S's" it is only necessary to refer back to where the elements were discussed in connection with the single-ship action; what applied to this will also apply to the fleet action. Here it was found that if the fast ship secured the "three S's" to her advantage at the outset, she could not hold them all, but would lose that due to sea. The battle could be continued on terms which gave "A" a gun-power of 3·164 to "B's" 2·439, a sufficient preponderance to decide it in "A's" favour.

Taking sea and smoke functions only into consideration, "A" is able to reduce his inferiority in gun-powder to a ratio of 3·252/2·581 in "B's" favour; he can never confer the advantage on himself.

Using the sun as the only element in "A's" favour, we found an equality established between the two ships, and, consequently, between the two fleets.

How would the flanking movement be influenced by the "S's"? To some extent, but not sufficiently in "A's" support to warrant the undertaking; for, supposing they conferred the advantage on "A" during the approach, this advantage would be lost, or perhaps reversed, by the change in compass bearing in the course of the ensuing manœuvres; and, supposing "A's" tactics gave him the advantage in this respect, as, or just before, "B's" "T" was crossed, the value of this advantage would be reduced by the close proximity of the rival fleets, and "A" will suffer great damage in the initial stages, as shown in the fleet action.

So far, then, we have arrived at the following conclusions, disregarding external influences with the exception of the "S's":—

1. With none of the "S" factors existing (on a calm, dull day), once "A" approaches to within 5,000 yards range he is compelled to resort to the torpedo attack, because the immense damage inflicted during retreat signifies his ruin.
2. Without the "S's," "A's" only chance is the most rapid approach possible, followed by torpedo attack.
3. The flanking movement by "A" is practically out of the question; his superior speed can only serve to prevent similar tactics by "B."¹
4. With the sea and smoke elements, "A" can only reduce his gunnery inferiority; he cannot gain the advantage, and must fall back on the torpedo.
5. With the sun element, "A" can equalise the gunnery of the two fleets. He can produce a further preponderance in speed through reducing "B's" by puncturing his bows.
6. With the sun and smoke factors, "A" secures a superiority of gun-power of 3'164/2'439.

From the foregoing discussion it appears that tactics will be chiefly conducted in single line, and beyond this they will be confined to the avoidance of gross errors, and securing the utmost advantage that the "three S's" have to yield, or that can be derived from the flanking manœuvre where practicable.

Semi-Independent Divisions.—There is, however, another view of tactics requiring consideration before coming to a final conclusion regarding the tactical problem, and that is the system formulated by Rear-Admiral Jacob Børresen, Chief of the Norwegian Naval Staff. ("A New Tactical System," in the *JOURNAL* of the Royal United Service Institution, March, 1903 and May, 1906.)

The procedure here adopted is based on the main idea of dividing the fleet into semi-independent divisions in order to "enable the Commander-in-Chief to concentrate an overwhelming force on part of the enemy." These divisions manœuvring on a circle of certain radius with the hostile van, rear, or other part as the tactical centre, and the placing of torpedo craft, etc., astern of the enemy to prevent him turning.

It is proposed to estimate shortly, by the same measures as before, the result of an action of this description, the same fleets being engaged as in previous examples. In case, however, too much value should be attached to the principle, it is well to repeat the observation that concentration of superior force on a portion of the enemy does not lead to such overpowering results as obtained in the old days, when,

¹ It will be understood that this conclusion refers to the case where there exists such an inferiority in armament as in the supposititious ships instanced. It is not intended to convey the opinion that "T-ing" is an impracticable evolution, but merely that the fast fleet requires a certain weight of armament, not necessarily that of the slow fleet, in order to enable it to close sufficiently for the flank attack without sustaining such severe damage as to render this attack abortive once the essential position is attained.

the van being engaged, the rear was completely out of the range of the smooth-bore, so that the superior force focussed on part of the enemy was free to work havoc on that part unmolested by the remainder, which, by the wind conditions imposed, was unable to come to the support. Nowadays by adopting a close order, one part, the rear, say, is capable of doing its quota of damage to the fleet attempting a concentrated fire on the van; and as the range of guns and accuracy in shooting increases, so the value of the system diminishes.

In Admiral Børresen's scheme the hypothesis is that the enemy will, in the first instance, shape a course between the divisions "with the old-fashioned idea of cutting off one from the other," and that the primary object of the divided fleet, concentration of its armament on the tactical centre by means of the "fleet angle," has been attained. Under no conceivable circumstances could this situation be maintained unless the superiority in speed lies with the latter, as, with equal speeds, an eight-point turn in succession by "B" will necessarily—no matter what turning movements the divisions of "A" make—alter the point of concentration; for, though the division towards which "B's" turn is carried out is still able to bring its fire to bear on the original tactical centre, the other division is deprived of that power, and in order to carry on the plan this point must be continually altered to suit the capacities of both divisions. Thus the object for which the tactics were instituted, the destruction of "B" in detail, would be thereby frustrated, and, indeed, the divided fleet possibly placed at a disadvantage through undergoing the ordeal of receiving the fire of fresher units.

With a higher speed for the divided fleet, the faculty of clinging to one tactical centre until the portion of the enemy represented has received sufficient damage, would be assured.

"B" is the slow fleet which is to remain whole and pursue the tactics of attempting to cut off a detached part of its opponent, and "A" is the fast fleet working on the theory of concentration of fire on a part of the enemy—say the van—by semi-independent divisions "A1" and "A2," connected by the "fleet angle" and manœuvring on the tactical circle of which "B's" van is the centre. Space does not admit of the quotation of Admiral Børresen's article in the *JOURNAL* of March, 1903, to which reference should therefore be made; but the cases are extracted.

1. The fleets remaining, "B" in line ahead, "A" in quarter-line, in the first disposition.
2. "It can hardly be denied that with the respective positions of the squadrons, as shown in Fig. 4, the head of the hostile column ("B") will have to bear the brunt of the battle—so much so, may be, that "B" will find that he must change into line abreast. (Fig. 5.) Suppose that the leading ship of "B" slows down to — to get into this new formation, it will take the column of twelve vessels — of an hour to get into line abreast, and in doing this it will lose about — yards of ground.
- 2a. "Seeing this manœuvre, "A1" orders "A2," by quick chordal movements, to get into position IV., and chooses herself position VI., by two simultaneous sheers of 180°, which manœuvre enables her to concentrate her whole fire on "B's" right wing.

- 2b. "Or "A1" can order "A2" to turn round and attack the head of "B's" column (see Fig. 6) in line ahead, the division commander leading it into close action just while "B" is changing her formation—an attack which will most likely lead to confusion in "B's" line.
- "We will not continue the present examples any longer. . .
- "There remains now to be considered the effects on the evolutions of "B" adopting the same formation as "A," or another suitable order; for example, the triangular one, with the point or wedge directed towards the gap between the two divisions.
3. "Having seen that the leading ship of his column suffers too much by keeping line ahead, "B" divides his column into two divisions, to which he gives orders to operate as detached semi-independent divisions, with "D" as centre. (Fig. 7.)
- "It is evident that the tactical situation has now become a more complicated one, which gives room for a good deal of initiative and enterprise from both Commanders-in-Chief, as well as from the division commanders.
- 3a. "A1" and "A2," who have the advantage of speed and positions in the front semi-circle, may be able to gradually work round "B1," so as to have the division isolated from "B2," and under fire from both "A1" and "A2."
- 3b. "Or "B1" and "B2" may try to do the same to "A2," but they will hardly succeed on account of their positions and their lower speed.
- 3c. "Or "A2" and "A1" may make a sudden chordal movement round "B," movements that again can be met by "B1" turning 90° towards "B2," and "B2" edging down on "A2," and so on; but the advantages—circumstances otherwise equal—will lie with him who commands the highest speed. Speed is a great tactical advantage; but the system also points to an advantage in distributing a given offensive power into several smaller units—within certain limits. The sea speed of each unit must not suffer, nor the stability of the gun-platform, nor the radius of action.
4. "The wedge system of "B" (Fig. 8), which may be resorted to if "B's" speed is very much lower than "A's," will give rise to the same circular, chordal, or radial movements by "A1" and "A2," gradual or sudden, as described above, to get one of the wings of "B" under the concentrated fire of both divisions—movements which must be met by twisting the triangle round so as to keep its apex still in the gap between the two divisions."

For convenience in reference these various examples have been numbered, and they will be dealt with separately with a view to estimating results by the application of the co-efficient methods used in this discussion.

As the gist of Admiral Børresen's scheme lies in the different ranges at which the rival fleets will engage, allowances must be made in the calculation of gun-powers and, consequently, hits sustained. The amount which five minutes of deflection or elevation alters the

point of impact is a known quantity for the different ranges; this may be regarded as equivalent to the measure of inaccuracy, and is practically proportional to the distance. 5,000 yards being taken as the distance which "A," the faster fleet, has chosen, this is used as a standard, and the fraction formed by dividing this numerator by the range in question gives a co-efficient by which to reduce the gun-power at that range.

In our examples it will be found that some of the ships of "B" would be just unable to bring all their guns into action unless they make slight deviations of course; as "B's" speed will not be of great importance, it will be admissible that she should sacrifice a small portion of it to enable this movement to be carried out.

Similarly, some of "B's" rear ships will not have "A's" exact four-point target presented to them; this will be allowed as the complete four-points (for "exposure" in calculating gun-powers), so as to compensate for "A's" greater, proportionally, virtual target for the long ranges.

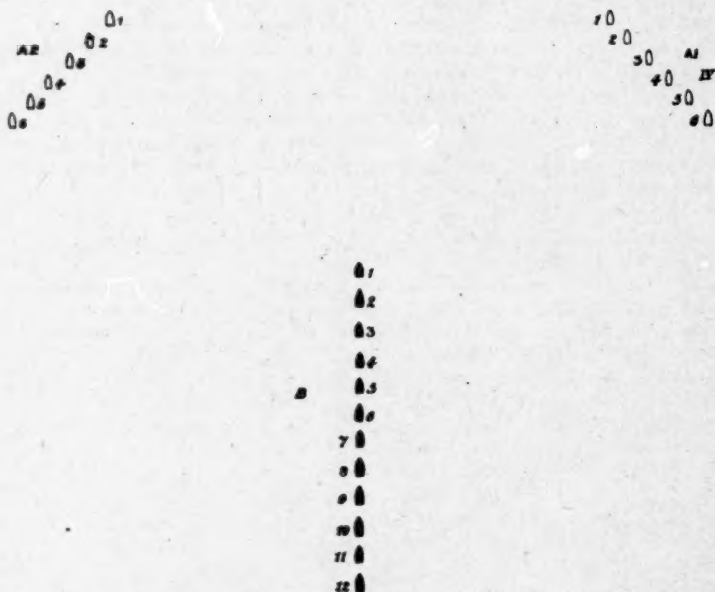
Table 2.

Showing gun-power and hits received in Admiral Børresen's Case (1.).

Ship.	Target.	Distance.	Gun-power.	Hits received per Minute.
A1 (1) ...	B (1)	5,000	3.16	7.62
(2) ...	(2)	5,300	2.98	7.18
(3) ...	(3)	5,600	2.82	6.81
(4) ...	(4)	5,900	2.68	17.05
(5) ...	(5)	6,200	2.55	16.36
(6) ...	(6)	6,500	2.43	15.72
A2 (1) ...	B (1)	5,000	3.16	Nil.
(2) ...	(2)	5,300	2.98	Nil.
(3) ...	(3)	5,600	2.82	Nil.
(4) ...	(4)	5,900	2.68	Nil.
(5) ...	(5)	6,200	2.55	Nil.
(6) ...	(6)	6,500	2.43	Nil.
B (1) ...	A1 (1)	5,000	5.08	9.48
(2) ...	(2)	5,300	4.79	8.94
(3) ...	(3)	5,600	4.54	8.46
(4) ...	(4)	5,900	4.30	8.04
(5) ...	(5)	6,200	4.09	7.65
(6) ...	(6)	6,500	3.91	7.29
(7) ...	(4)	6,800	3.73	Nil.
(8) ...	(5)	7,000	3.60	Nil.
(9) ...	(6)	7,250	3.48	Nil.
(10) ...	(4)	7,650	3.34	Nil.
(11) ...	(5)	7,900	3.22	Nil.
(12) ...	(6)	8,200	3.09	Nil.
A Fleet ...	—	—	2.77 (average)	—
B Fleet ...	—	—	3.93 "	—
A 1st Sub. ...	—	—	—	7.20 (average)
2nd " ...	—	—	—	16.38 "
A2 Division ...	—	—	—	Nil.
B 1st Sub. ...	—	—	—	8.96 "
2nd " ...	—	—	—	7.66 "
B2 Division ...	—	—	—	Nil.

Case 1.—A1 and A2 have formed quarterline after the necessary dispositions have been taken up. "B" remains in single line ahead. It is assumed that "A's" two divisions will concentrate their fire on "B's" first division; and "B," with the idea of destroying one of "A's" division at a time, will concentrate on "A1," as shown in the table (2).

Fig 4.



Referring to the table, we find that "A's" 2nd sub-division is receiving an overwhelming fire of 16.38 hits per ship per minute, which will soon put it out of action; while "A2" and "B2" receive no fire. To compute how long it will take to disable a ship is, with our limited experience, an impossibility, so here assumption must again come to our assistance. Taking, as before, one hundred hits at reasonable range as necessary to destroy the fighting power, we find that "A's" second sub-division will be disabled in 6.1 minutes, at the end of which time the state of affairs will be:—

Unit.	Hits received per ship.	Gun-power co-efficient of reduction.
A 1st Subdivision	43	.57.
A 2nd "	100 (disabled).	—
A2	Nil.	—
A 1st Subdivision	53	.47
B 2nd "	45	.55
B2	Nil.	—

"B2" will then be in a position to turn its attention to the 4th sub-division of "A"; the fire on "B" 2nd sub-division will be

reduced by half, owing to the disablement of "A" 2nd sub-division, and its fire will be directed on "A" 4th sub-division.

Neglecting the time required for change of target, at the end of the next 7.4 minutes the circumstances will be:—

Unit.	Hits received per ship.	Gun-power co-efficient of reduction.
A 1st Subdivision	68	.32
A 2nd "	Disabled.	—
A 3rd "	Nil.	—
A 4th "	100 (disabled).	—
B 1st "	105 (disabled).	—
B 2nd "	67	.33
B2	Nil.	—

So, after 13.5 minutes "A" has 3.96 ships remaining, and "B" has 6.99 ships. That is to say, the ratio of armaments has been reduced from 1/1.5 to 1/2.65.

Thus a preponderance against "A" is shown which renders it out of the question to attempt these tactics. It might be objected that shots fired at the shorter distance hit harder and do more damage, but with shells—used so much in the late war—this would not, it is submitted, materially affect the solution. Even if a greater allowance were made in favour of "A" for the greater range at which "B's" rear ships are fighting, the loss to "A" would still be large.

If "A" concentrated on "B's" 1st sub-division, and disabled it at the outset, matters might be improved for "A" if much value were attached to the destruction of the van in preference to the rear. It appears, however, that with modern fighting machines this is an overrated advantage; it is true that the Far Eastern war demonstrated the serious outcome of confusion caused by damage to a single ship in the van, but we confidently hope for an organisation which is efficient enough to risk this without disaster.

Disallowing it in this case, we obtain a result slightly more in "A's" favour than when "A" concentrated on "B's" leading division, as shown in table below:—

Interval. Minutes.	Unit.	Hits received per ship.	Gun-power Co-efficient of Reduction.	Change of Target.
5.75	A 1st Sub. ...	41	.59	—
	2nd Sub. ...	94	.06	A then concentrates on B 2nd Sub-division.
	A2	Nil.	—	
	B 1st Sub. ...	100 (disabled)	—	
	B Remainder	Nil.	—	—
.36	A 1st Sub. ...	41	.59	—
	2nd Sub. ...	100 (disabled)	—	—
	A2	Nil.	—	B will then fire on A 4th Sub-division.
	B 2nd Sub. ...	4	.96	
	B2	Nil.	—	
6	A 1st Sub. ...	41	.59	—
	3rd Sub. ...	Nil.	—	—
	4th Sub. ...	100 (disabled)	—	—
	B 2nd Sub. ...	60	.4	—
	B2	Nil.	—	—

Thus, after 12.1 minutes, "A" has a balance of 4.77 ships; and "B" has 7.2 ships. This places the armaments in the ratio of 1/2.3 in "B's" favour.

It would be interesting to investigate the result of a battle of this description where the adversaries are more evenly matched, so that the advantage of these tactics may be assessed. For this purpose "A" and "B" will be considered to possess equal armaments, and "A" will have a slight excess of speed—and consequently in the length necessary—in order to maintain the dispositions:—

Interval. Minutes	Unit.	Hits received per ship.	Gun-power Co-efficient of Reduction.	Change of Target.
6.1	A 1st Sub.	43	.57	B 2nd Sub. will then direct its fire on A 4th Sub., as also will B2; the fire on B 2nd Sub. will be reduced by half.
	2nd Sub.	100 (disabled)	—	
	A2	Nil.	—	
	B 1st Sub.	81	.19	
	2nd Sub.	68	.32	
	B2	Nil.	—	
1.81	A 1st Sub.	46	.54	—
	2nd Sub.	100 (disabled)	—	—
	3rd Sub.	NJ.	—	—
	4th Sub.	21	.79	—
	B 1st Sub.	100 (disabled)	—	—
	2nd Sub.	102 (disabled)	—	—
	B2	Nil.	—	—

Thus, at the end of 7.9 minutes, "A" has 7 ships and 42 guns, and "B" 6 ships and 36 guns, remaining. The armament, therefore, has been reduced from equality to 1.17/1 in "A's" favour, which demonstrates the advantage of these tactics to the fleet having the speed to admit of their being carried out.

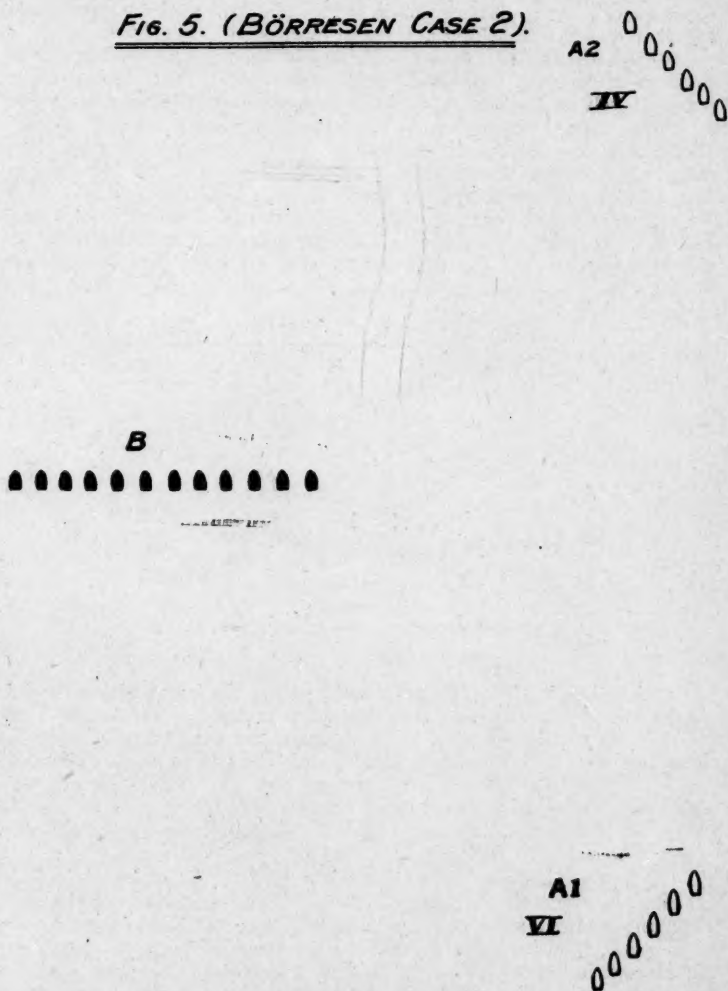
In the examples given it has been allowed that "B's" rear ships have made slight turns in order to bring their guns to bear, and that they have continued sufficiently long on one course to disable "A's" second sub-division; this would necessitate a similar course on the part of the leading ships of "B," which would place that fleet not quite in line ahead but nearly so; "A" would require to adjust his movements accordingly; the problem would not be materially altered.

This method of estimating the results of a battle at certain periods must necessarily be somewhat rough, for, during these periods, it is obvious that the same gun-power and rate of fire cannot be maintained as at the beginning of the periods. By allowing for the gradual decrease, the calculations would be complicated, while such procedure does not appear to be absolutely essential. Our method should suffice for present purposes.

It is manifest, then, that for the fast fleet with inferior armament to employ these tactics with success, a range must be chosen which will place part of the enemy completely out of the battle, as far as effective gun practice is concerned. But "B" will always be at liberty to alter his formation so as to nullify this disadvantage by bringing his rear ships up; and here Case 2 comes under discussion.

Case 2.—The fleets will be supposed situated as in Case 1, except that "A" has secured a distance which gives his ships an average range of 8,500 yards when firing on "B's" leading sub-division; while the leading division of "B" has a mean range of 8,800 yards, and an extreme range of 9,500 yards in firing on either division of

FIG. 5. (BÖRRESEN CASE 2).



"A." Using the same method as before, we estimate the gun-powers to be in the ratio of 1.22/1 in "A's" favour, so long as "B's" rear ships are kept out of effective range.

"B," seeing his inferiority, alters his formation to single line abreast. "A," aware of the disadvantage at which he will be placed

by "B's" rear ships coming within range, increases his distance, while "B" is forming, and he is taking up the positions suggested by Admiral Børresen. Time is really not much object to "A," as "B" will be anxious for battle.

Case 2a.—The new dispositions having been made, it is unquestionable that "A" acquires superiority on account of range, and he could increase it in other respects by bringing his two divisions closer together and thus masking a large proportion of "B's" fire.

Case 2b.—If "A" were to adopt the tactics (2b), bringing one division across "B" while he is forming, and the other division placing itself on the opposite flank, he would lose the advantage due to range. Our previous instances have shown that without the "S" elements to counteract his inferiority in artillery, at close quarters "A" cannot hope to attain success unless he resorts to the torpedo. It is true that, in the movement under consideration, one division may for a time secure the comparative equality of gun-power of 2/2.54 mentioned at the same time as the flanking division is concentrating his fire on a portion of "B" fleet; but the result would not be commensurate with the advantageous position obtained by "A" in (2a).

FIG. 6. (BØRRESEN CASE 3.)



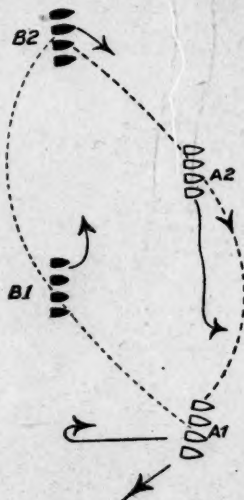
"A" then has, in (2b), apparently gained the best position possible under the circumstances. Are there any means by which "B" may reduce his disadvantage? If he again forms single line ahead, the situation will be the same as before, with the gun-powers in the ratio of 1.22/1 in "A's" favour. Whichever way "B" alters course, "A" can, with his superior speed, again concentrate on a part of the enemy. It is left for him to try case (3), with the sub-cases (3a), (3b), and (3c), and case (4).

Case 3.—This does not offer much scope for "B." As "A" will be constantly attempting to isolate one of "B's" divisions, at the same time preserving a suitable range, and "B" can, with his comparatively low speed, hold no hope of pursuing the same tactics with any degree of success, it follows that "B" will be compelled to keep his divisions close together or he will be in a perpetual state of alarm lest one of them be cut off. Hence, disregarding outside influences, "B" will be unlikely to entertain the tactics of this case.

Case 4.—This appears to represent the correct policy for "B." By its adoption it is impossible to see how "A" can secure any benefit whatsoever, except perhaps from the existence of one or more

of the "three S's," by virtue of superior speed. In fact, this partakes of the nature of the single-ship action, where a slight alteration of course by the slow ship frustrates any attempt the fast ship may make to bring greater relative gun-power to bear. Nothing is to be gained by increasing the range in this case except the avoidance of the "torpedo-attack-without-retaliation" danger; and "A" may be driven to this course should "B" turn, say, sixteen points, which manœuvre can be easily carried out, at the same time as he inverts the apex of the triangle for the new direction, if necessary, without masking the fire of a single one of his ships. Interference of gunfire during the turns will be common to both fleets. All guns of "B" may be brought to bear by slightly opening the wedge. Movements by "A" may be

FIG. 7. (BÖRRESEN CASE 3).



immediately met by the same tactics, it being premised that the use of torpedo craft or cruisers by "A" to assist him in his manœuvres may have an antidote of the same description.

Hence it is concluded that as this is the most advantageous formation for "B," it is the one which it may safely be supposed he will select in reply to "A's" employment of Admiral Børresen's method; and, consequently, the other cases of a similar nature which have been considered may be disregarded. It is not intended to convey that the scheme is altogether impracticable; it is so, however, where the difference in armament is so appreciable.

The question now arises: What effect will the "S" factors exercise on this method? Taking the last case (4), assuming "A" has secured the sun, can he retain it, and if so, will it furnish him with any advantage of which he can make equal or more use in tactics other than these?

"A" can certainly retain this element for one of his divisions, and his superior speed will permit him to manœuvre for it during the

approach. He cannot, however, derive advantage from the sea, for the reason that "B" will be able to neutralise it. As for the smoke factor, "A" might be competent to use it for one of his divisions; but, on the other hand, so might "B." The chances are, nevertheless, in "A's" favour, for, having two divisions at different bearings from "B," he has double the opportunity.

As the fast fleet has the prerogative of being able to choose its own time of battle, it will be presumed that "A1" has manœuvred successfully for the sun, and "A2" for the smoke. The ships of both fleets presenting their four-points to one another, the gun-powers are:—

"A," 4 by 791 = 3·164.

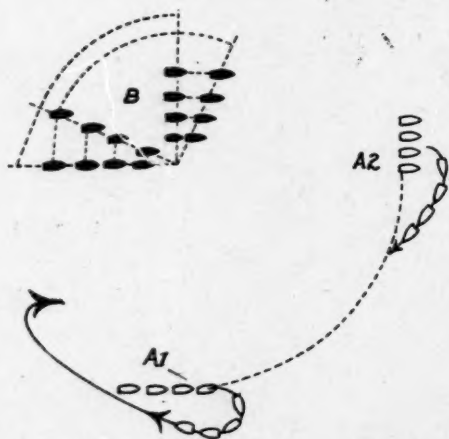
"B1," 6 by 847 by 6 = 3·049.

"B2," 6 by 847 by 8 = 4·065.

} Mean, 3·557.

This awards the advantage to "B," whereas we have found the same circumstances to confer it on "A" in our other instances.

FIG. 8. (BÖRRESEN CASE 4)



Tactics Conclusion.—The conclusion to which we must inevitably come is that, as the problem of this paper requires to be judged from the standpoint which allows the utmost to be made of the respective factors with which we are dealing, and that as the faster ship always possesses the power of attaining certain positions essential to successful gunnery, we have to fall back on the "three S's," or the alternative torpedo attack as the aim of the fast ship; and, in consequence, Admiral Børresen's scheme—though it has been shown in a favourable light, with respect to the fleet adopting it, in that section of case 1, where the armaments are equal—will not suit our purpose, a greater advantage accruing to speed in the use of tactics which permit the fullest use of the "S's."

The main inference to be derived from our discussion is that, from tactical considerations, the value of speed has been much diminished by the tremendous advance in the range and power of ordnance. In the old days two or three knots in hand would have proved of incalculable worth; it would have rendered armament of secondary im-

portance by allowing concentration of fire on small portions of the enemy while the remainder were absolutely and helplessly out of range. Had Herbert, at the battle of Beachy Head, possessed this element of success, nothing would have been more easy than to move the allied fleets up to the head of Tourville's ships and crush them in detail; he would have been able to treat his enemy under way in the same manner as Nelson treated an enemy at anchor at the Nile.

Now all is changed; compared with the epoch of short ranges, speed is almost discredited; it still has its value but to a very much reduced extent.

We require, then, to assess values to speed and armament applicable to modern times. It has been deduced, as exhaustively as the limits of this paper will permit, that the main means of employing an excess of speed, once the belligerents arrive within touch, or at the point where strategy ceases and tactics begin, are:—

- a. Securing and maintaining favourable "S" conditions.
- b. If such do not exist—as on a calm, dull day—a rapid torpedo attack, feasible to the fast battleship by virtue of her armour and armament.
- c. Avoidance of action until favourable conditions *can* be secured.

To these may be added a factor so far neglected: the acquisition of advantages engendered by the proximity of land, shoals, forts, submarine-infested harbours or coast, mine-fields, and so forth, the consideration of which may pervade each of the foregoing. Here, disregarding the harbour of refuge idea—which does not exactly apply to the problem—the aim of both fleets will be the possession of the outside berth, the side away from the shore or other danger, whether the coast be friendly or otherwise. For, if friendly to the outside fleet, the inside fleet is much confined in its movements, and is forced either to approach too near the land and place itself in jeopardy from the country's defensive measures, or to allow the enemy to close for the delivery of a one-sided torpedo attack. If the coast is friendly to the inside fleet, it gains nothing in particular by its presence. If neutral, it still serves to hamper the movements of the nearer fleet.

It may be definitely stated that the desired position may be obtained by the faster adversary, but it is difficult to attach a specific value to the advantage gained, as in the case of the "three S's." It can only be considered together with other undetermined particulars employed in strengthening or weakening our argument.

The importance of (b) and (c) consists in their application to the "S" question. If favourable, "S" conditions cannot be secured; the fast fleet is able to postpone the contest, or it can make rapid and resolute contact culminating in torpedo attack. And here, after some sifting, we have arrived at the essence of the problem.

To summarise what has been written in previous pages:—

"2. Without the "S's," "A's" only chance is the most rapid approach possible followed by torpedo attack.

"4. With the sea and smoke elements, "A" can only reduce his gunnery inferiority; he cannot gain the superiority, and must fall back on the torpedo.

"5. With the sun element, "A" can equalise the gunnery of the two fleets.

"6. With the sun and smoke factors, "A" secures a superiority of 3'164 to 2'439."

How far are we justified in expecting the occurrence in a tangible form of the physical conditions embodied in the "three S's"? This seems to be a question for reference to the Meteorological Office, and, no doubt, can be satisfactorily answered. If so, additional lustre is shed on the work of the Office, for its records will have conduced to the safety of the Empire as well as to that of those "who go down to the sea in ships."

At the lowest estimate, it would not be unreasonable to presume that the fast fleet can secure the "S" advantage which is at the bottom of the scale; this is (4), sea and smoke, but with sea neutralised, which reduces its disadvantages in gun-power to a ratio of $3.252/2.531$.¹ Let us now increase the armament so as to further reduce this ratio to unity. The necessary increase will be from 4 to 5.12 guns. By this addition "A's" speed will, of course, be diminished (the ship remaining the same size), but it will be, or can be made, sufficient to secure position, with the various advantages emanating therefrom. The sun factor will now give the fast ship a higher gun-power than the enemy.

We have indicated that the fast fleet requires a certain armament in order to allow it to accomplish the preliminary manoeuvre for "T-ing"; the reduction in the disparity of ordnance will probably provide for this end by facilitating the convergence without the unequal damage sustained in the case cited (see footnote, page 1440). An alternative would be to retain approximately the speed and armament with which we have conducted the investigation, and to make use of some of the extra space in "A" to install a superior torpedo equipment. Then, if the "S's" were not available "A" would, provided he were disinclined to wait for a more auspicious occasion, overcome the enemy by a torpedo onslaught.

An instance (page 1337) has shown that with a preponderance of two knots, a ship would take fourteen hours to reverse the enemy's bearing with the object of securing the sun factor in her favour, keeping out of effective range during the interval, and that this would be practically outside the limits of daylight. It was, however, an extreme case; may we not, therefore, take two knots as sufficient difference to allow the ship—or fleet—of inferior armament to reap the advantages enumerated?

Whence we ultimately reach the decision that, tactically, a ship must have $5.12/6$ of the armament of a possible enemy, with the stipulation that she has $19/17$ times the speed; which gives the relative values of speed and armament as 1.117 to $.853$, or 1.3 to 1 .

This relation is, however, correlative with existing conditions; the nearer we attain to the "compromiseless" ship, the nearer the

¹ In this is embodied the selection of one of the following, according to existing circumstances, penalising at a low computation the gun-power of the slow ship by the co-efficient '8:—

- a. A different direction relative to the sea with the object of being less subject to motion. It has been shown, however, that except under unlikely conditions this can be neutralised.
- b. In a smooth sea or slight swell, the lee-gauge to secure the smoke advantage.
- c. In a heavy sea, the weather-gauge, discarding the smoke element by not being placed dead to windward, and obtaining instead the benefit of having the damaged side to leeward.

ratio will approach unity, the predominance in speed being a constant. The above ratio is applicable to conditions exemplified in the ships we have used as instruments to an end. Affairs have taken a turn which will necessitate a slight revision to suit the future. Applying this conclusion to the "Dreadnought," with 10 guns and 21 knots, we find that she could be beaten by a similar ship (with such alterations as the contractor will require) of 8.53 guns and 23 knots, which gives the relative value of speed and armament as 1.095 to .853, or 1.283 to 1.

We have arrived, through a path of dull, sordid, figures, at a mathematical formula; let us see in what further particulars this result is affected.

In favour of armament we have:—

Handiness.—As applied to modern ships, with the ram discredited, this need not seriously affect the problem. Slow turns to minimise interference in gun-fire will often be the order, permitting, with practice, the guns to be kept trained on the target. A disadvantage of a sharp turn is the heel and roll caused; e.g., the "Yashima," 8½ degrees at full speed with the helm hard over. Hence the quick turning property of battle-ships is not of much consequence except where there is a very substantial difference.

Speed, not being an asset of the slow ship, is not likely to be forced during action. There would also be less damage to fittings which have relation to speed; this probability has, however, been lately much diminished.

Danger space and angle of descent exercise less adverse influence on the shorter ship.

Speed, the asset of the faster ship, is more likely to be reduced in battle than armament, the asset of the slower ship. The reduction of speed would be of great, and growing, importance, for its effects will be cumulative—at compound interest, as it were—and would multiply the damage to the erstwhile faster ship as she loses her faculty for maintaining her "S" or other advantage. In view, however, of the expected short duration of a modern battle, it is doubtful whether the slow ship would deliberately aim at reduction of speed by firing high, at the funnels, etc., the chances of success being too small to balance the risk of failure in the time wasted—time which the faster ship will be utilising to the best gunnery advantage. The slow ship is likely to fire as rapidly as possible to make the most of her opportunity before her faster opponent escapes; while the fast ship will also fire quickly to make the most of the benefits her speed has given.

Less Vibration Due to Lower Speed.—This will be reduced to a minimum in its effect on range-finding and shooting by the tripod mast and the turbine-fitted battle-ship of the immediate future. Further, the fast fleet will not require to use its utmost speed except to secure position—not to maintain it.

In favour of speed:—

Confidence is inspired in the admiral; he feels that any mistake he may commit is not irremediable.

The prerogative of accepting or refusing battle. It is impossible to overrate the importance of this fact.

Habitability of the longer ship, with better accommodation, and, consequently, disciplinary and endurance advantages. This is of no small importance.

Increase of speed automatically facilitates increase of armament, because of the necessary addition in length.

More space for torpedo armament.

The slow fleet may be prevented from escaping, *e.g.*, Tsushima. It may also be forced, to avoid being "T-ed," to take the direction imposed by, and advantageous to, the enemy.

Seaworthiness, allowing speed to be taken advantage of in bad weather. The best planned schemes may fail through stress of weather, but the fast ship is less affected in this respect on account of her length.

The slow ship, finding it of no avail to force her speed, the fast ship need not do so either.

Greater facilities for correcting errors or taking advantage of those of the enemy.

Steadier platform owing to less top weight and greater size of hull.

The torpedo of the future is likely to have an important bearing on tactics; the fast ship will be in a position to adapt herself better to any changes that might take place.

Power to Regulate the Range.—This is important, for it may be necessary to keep out of the hail of small projectiles so detrimental to *moral*, if the enemy mounts a secondary battery. The danger space consideration would probably be absorbed in the power of the faster ship to control the range; and this factor, constituting a drawback by reason of her greater length, would doubtless lead to the choice of a distance which would warrant its neglect.

Less exposure of armament.

Ability to make sudden and rapid movements in order to seize the opportunities of the unexpected, and to lessen the chances of the slow ship by similar action.

Hence we have, as it appears, a preponderance of minor details in favour of the fast ship to give confirmation to our finding. But an important point should not here be lost sight of: this is the "S" factors as applied to fleet actions. It was said that these exerted the same influence as in the single-ship fight; there is, however, a difference in that the various elements may impose on the slow fleet the necessity for adopting some degree of open order, so that a number of the ships may not labour under the disadvantage, thereby providing possible opportunities in regard to concentration of fire for the fast fleet. It is not difficult to conceive the slow fleet to be so placed as to be driven to try all expedients to rid itself of encumbrances prescribed by its faster opponent.

The theory has been advanced that an objection to superior speed lies in the temptation it offers to be used for the purpose of running away! Surely this is a somewhat far-fetched argument. Might we not take our risk in this respect? It might as well be said that giving a torpedo craft high speed may induce her to turn tail instead of attacking; or that fitting halliards to the colours will seduce a captain to commit the act of hauling them down. We hope it is not indispensable to cater for such eventualities.

A striking example of the disabilities under which the slow ship labours with respect to the choice of range is shown in Admiral Nebogatoff's defence of his surrender after the battle of Tsushima. He says the range of his guns was 50 cables, and that the enemy kept at 55 cables distance. "We thus presented a target which it

was easy to fusillade, but which itself was not in a position to reply." (JOURNAL of the Royal United Service Institution, October, 1906.)

Some writers have advocated battle-ships of different speeds in a fleet with the idea that the "L" formation, quick cutting off, and similar manœuvres, will be carried out by the more speedy type. Such movements will, it is expected, now be part of the duty of the armoured cruiser; not the armoured cruiser of the present era, but that which is almost certain to come, under either that name or the name of "cruiser-battle-ship," or "battle-cruiser," which will be a separate unit.

This is an age of specialism, but the battle-fleet should be made the exception. An admiral will have quite enough to think about in action—amongst other details, the speed of his individual ships *as reduced by war*—without starting with unnecessary complications. A means of constantly keeping the Commander-in-Chief informed, by signal, of her possible speed during a fight, by each ship, would probably be adopted, to enable a proper estimate to be made of the fleet's capabilities from time to time.

STRATEGY.

Space will not admit of so extensive a discussion to be entered into for the solving of the strategical, as for the tactical, problem. As the former will be in a measure influenced by the conclusions arrived at in the latter, it seems justifiable to have devoted more exhaustive argument to the tactical puzzle.

Obviously this paper is to deal with minor, or war, strategy. As it is desirable to consider the question from the standpoint of a naval Power, and we can under no circumstances expect to find conditions equal in respects other than those under discussion—as in tactics—it is convenient to take familiar ground on which to create supposititious elements in regard to the contending forces.

Let us imagine, merely for the sake of simple elucidation—not on account of any probability of such unfortunate circumstances—the belligerents to consist of Great Britain on the one side, and a coalition between France and a Baltic Power, say Germany, on the other; and let us suppose there are altogether six fleets of twelve ships each, viz., the Channel, Atlantic, and Mediterranean Fleets of England, and the Brest, Toulon, and German Fleets of the Allies.

England starts with the most important benefits which geographical position can confer, both in the way she can command the enemy's, and in the distribution of her own, bases. On the other hand, she is subject to the disadvantage of not being self-contained, whereas the Continental Powers have no anxiety on that score. The consequence is that England's aim will be the destruction of the enemy's fleets at all costs; while that of her adversaries will be mainly the starving policy, the arresting of commerce—for which France is well situated—carried into effect, if possible by the project (a primary one if invasion is contemplated) of the overthrow of England's fleet. A repetition of Tourville's successful warfare on our shipping in 1691, pursued by keeping the enemy's fleet engaged whilst his privateers harassed commerce, cannot occur nowadays; our cruisers and torpedo craft are too plentiful.

Case I.—In our first instance the British ship will be of the "A" type, those of the Allies the "B" type, already described, and hence

forth for brevity "A" will represent Great Britain and "B" the Allies, "G" being the German Fleet.

"B's" first objective will be the concentration of his three fleets at a pre-arranged rendezvous so situated as to offer a favourable chance of the meeting taking place with the minimum risk of exposure of the separate fleets to possible attack by a combination of two or more of "A's" fleets. His inferior speed renders this essential. It being conceded that the Toulon fleet will have left the Mediterranean just prior to the outbreak of war, this rendezvous would be at a point about midway between Gibraltar and the Elbe. It might be said that "B" would have succeeded in placing his fleets so as to effect a speedy junction at the commencement; but, on the other hand, it might be part of "A's" strategical policy to see that war was declared immediately such symptoms showed signs of appearing. Hence, though the Toulon fleet may be in the vicinity of the Straits, it may be taken for granted that the other "B" fleets will be in or near their ports.

The rendezvous will be about 100 miles off the Irish coast and on the 54th parallel. If the concentration here is successful, "B" will probably, while waiting to bring "A" to action under conditions now advantageous to him, form his battle fleet into a kind of base on the trade route from which his cruisers and torpedo craft might carry on a *guerre de course*. He would encounter difficulties with respect to lines of communication and bases, but these would appear later.

On "A's" part, it would be of small use concentrating his fleets before the reduction of the enemy's. His duty is to bring a combination of two of his fleets against one of "B's," and then to unite his three fleets for the destruction of "B's" remaining two. If he is successful in the first instance the ultimate result will follow as a matter of course. If "A" meets with failure, he must pursue a weary, waiting policy with the object of reducing "B" as opportunities offer—a species of guerilla warfare. Or he will bring the Allies to action after having secured the most favourable "S" conditions.

"A" would choose operations near home in preference to others in order to prevent panic amongst the ignorant, and inspire confidence in the people. He would aim at the destruction of the "G" fleet by throwing the Atlantic and Channel fleets on to it; but how is he going to ensure the enemy placing his fleet in such a position that the battle will be brought about? By watching each of "B's" fleets with one of his fleets. The communications of the Continentals will be sufficiently efficient to permit each of their contingents being informed of the whereabouts of the opposing fleets whilst watching. The "G" fleet is lured out by the knowledge that only one fleet is in its vicinity, and that of inferior armament, the others being engaged elsewhere. It is presumed that our present-day communications would be capable of letting the Atlantic fleet off Brest know of the sailing of the "G" fleet. Nelson a century ago knew of the weighing of the Trafalgar fleet 2½ hours after the event.

If it were not the "G" fleet, but one of the others, it would be practically the same thing to "A"; and if none of the "B" fleets moved from the vicinity of their ports, no harm could come to "A's" country.

Well, on hearing of the Baltic fleet's departure, the Atlantic fleet will proceed to intercept it off the North of Scotland; the Channel fleet will keep within touch of "G," and the Mediterranean fleet will, under pre-arranged orders, cease to watch the Toulon fleet and proceed at about 19 knots to a rendezvous off the West Coast of Ireland. The

"G" fleet will avoid the torpedo craft-infested Channel and steam round the North of Scotland; the Brest fleet makes for the rendezvous with the hope of intercepting the Mediterranean fleet; and the Toulon fleet also steers for the rendezvous, with an eye to the same object. Allowing the spurt speeds to be reduced by two knots for the comparatively long passages, we find that the Atlantic and Channel fleets will have effected a junction and brought the "G" fleet to action 43 hours after the former's leaving the Brest fleet. At that moment the Mediterranean fleet is in about the latitude of Brest; the Brest fleet will have arrived at the rendezvous (it being useless for it to go north with the idea of taking part in the battle now progressing, for it would arrive on the scene eleven hours late).

Making allowances for the Mediterranean fleet's large circle to avoid the Brest fleet at its new station, and for a temporarily reduced speed for the combined Channel and Atlantic fleets after the battle, the three "A" fleets would meet at the rendezvous to the N.W. of Ireland in 28 hours, and six hours afterwards the Toulon fleet will have joined the Brest fleet. In that six hours much may be done, but "A" cannot hope to engage the Brest fleet before the arrival of the Toulon fleet. It is now necessary to ascertain the cost at which "A" has destroyed the "G" fleet.

Without going into details, for which there is no space, and working on the assumption that the fast fleet has secured the advantage due to the "S" factor lowest on the scale, we know the gun-powers to be in the ratio of 3.252/2.531 in "B's" favour. We get the following table:—

Interval. Minutes.	Fleet.	Hits received per ship.	Gun-power Co-efficient of reduction.
5	A	5 by 3.25 by 1.5 by 5 = 12.188
	B	2 by 1.5 by 2.53 by 5 = 37.962
5*	A	12.1 plus 12.1 by .62 = 20.6 ..	.8
	B	37.9 plus 37.9 by .88 = 71.2 ..	.29
5	A	20.6 plus 12.1 by .29 = 24.176
	B	71.2 plus 37.9 by .8 = 101.5 ...	Disabled.
15 minutes.			

Hence, after a quarter of an hour, "B's" fleet may be considered vanquished, and the fleets of "A" engaged have their average gun-power per ship reduced from 2.53 to 1.92, with, probably, a diminished speed.

"A," then, is left with the Mediterranean fleet intact and the other two fleets with reduced gun-power, giving 36 ships with an average gun-power per ship of 2.12, against "B's" 24 ships of 3.252 average gun-power, a preponderance in "A's" favour—subject to increase by repairs—which would probably leave it out of the question for the Allies to continue the war.

It is not possible to see how "B" could have avoided this preliminary, and, as it would doubtless eventually prove, final, defeat, considering "A's" overpowering geographical advantages, coupled with

the possession of ships with an excess of speed of four knots. He could not keep his fleets in port, for then no advance in the hostilities would be made; and if "A" had decided on the destruction of either of the other fleets, junction could always be effected and the engagement brought to a successful issue before the arrival of the contingent set free by the withdrawal of the watching fleet.

On account of the natural advantages, it is not practicable to draw direct conclusions as to the relative values of speed and armament at this stage; the conditions must be reversed first. This brings us to Case 2.

Case 2.—The problem will be discussed in this case where Great Britain has the slow ship "B" and the Allies the fast ship "A." The former Power will be represented by "B" and the latter by "A." To follow the fortunes of the respective fleets, "B" not being able to refuse battle, his first essential is the concentration of the three fleets to avoid risk of any one or two of them being met by a faster and more numerous combination. Against this policy, however, are the considerations that—making the same concession as before with regard to the quitting of the Mediterranean by the Toulon fleet—concentration on one of the other ports would merely serve to keep its fleet locked in while the remaining fleets of the enemy will be at liberty to carry on the war against commerce; and that spreading out the combined fleet on the probable field of operations of "A," with the idea of catching the separate contingents at a disadvantage before their union would—entering the domain of tactics for a moment—endanger portions of the fleet, too much dispersed for rapid assembly, by possible flanking manœuvres of a mobile opponent.

Thus "B" is so tied down by his inferior speed that it is difficult for him to decide how he may make the utmost of his one asset—armament. If he places his combined fleet where "A," after the junction, is carrying on his *guerre de course*, he cannot ensure bringing him to battle; while "A" may create a panic, with who knows what disastrous results, by descending on the enemy's coast towns; or he will, more probably, utilise his prerogative and engage under the most favourable "S" conditions which we have shown to confer an advantage in gun-power of 3:164/2:439 on the fast fleet. Here the defeat of "B" and the ultimate command of the sea is assured.

Hence "B's" lack of speed has apparently put his fleet in a very helpless position. An alternative which it will be assumed "B" is likely to adopt would be to blockade "A" in his ports or his mine and torpedo-protected anchorage, even though the individual fleets of the enemy might again secure an advantage by use of the "S" elements. But the Toulon fleet is at large—it cannot reasonably be presumed that all "A's" fleets will be at their bases—and it must therefore be seen how this fact affects the problem. The Mediterranean fleet cannot hope to bring the Toulon fleet to action; consequently, it proceeds north, ahead of the enemy, for the purpose of being near at hand to join with the Atlantic fleet off Brest against the united Toulon and Brest fleets in case they should make an onslaught on the blockading fleet. It is not possible for "B" to know whether the Toulon fleet will pursue these tactics or make a joint attack with the "G" fleet on the Channel fleet (which is watching the "G" fleet). If the latter, it would steer a course to the West of Ireland to avoid the torpedo-infested English Channel, and the Mediterranean fleet would take the Channel route in order to reach its objective in time, and would thus get out

of touch with the Toulon fleet, which thereupon turns and unites with the Brest contingent in a very one-sided attack on the Atlantic fleet.

To avoid this perilous issue, the Mediterranean fleet follows the Toulon fleet, and the Atlantic fleet proceeds through the Channel to the support of the Channel fleet.

Here it might be said that both these southern fleets of "B" should proceed to the North Sea. True; but then the Toulon and Brest contingents would be at liberty to refuse battle on the arrival of all the fleets off the "G" port, and could then carry on their commerce warfare.

The Toulon fleet, having made a feint, now turns and encounters the attendant Mediterranean fleet, which, on its part, is being chased by the Brest fleet released by the withdrawal of the Atlantic fleet, and a battle ensues which, conceding the lowest value to "S," results in the annihilation of the Mediterranean fleet and the reduction—as in Case 1—of the "A" fleets engaged from 253 to 192.

"A," then, is left with the "G" fleet intact (it being premised that the protection of his base is adequate to resist attack), and his other two fleets with reduced gunpower, and probably temporarily diminished speed, giving an average gunpower per ship of 212 against "B's" two fleets of 3252 gun-power. The damaged fleets could proceed, unmolested by battle-ships, to Brest for repairs.

Hence, even Great Britain's immense geographical advantages cannot compensate for her slow battle-ships; she is, in fact, utterly impotent as the possessor of them unless she can make up her deficiency in this respect by such a multitude of cruisers and torpedo craft as to drive her enemy off the sea.

The whole of the argument depending upon the presumption of the possession of slow battle-ships by England points to the absolute necessity of a preponderance in torpedo craft to enable her to seal a considerable portion of water, which would otherwise be at their disposal, to the enemy's battle fleets, the principle involved being that proper distribution of these small vessels, not to be overcome by the lesser torpedo fleet of the Allies, will limit the space available for the movements of their battle-ships and thus provide readier means of bringing about a meeting. Apart from other objections to the slow battle-ship, this is a disadvantage in itself, as, the smaller the vessel the more rapid its construction; consequently, Powers with whom we are likely to become occupied in a struggle at sea will be able to bring their mosquito fleets up to sufficient strength in a comparatively inappreciable time, and so reduce the value of our peace strategy—perhaps during the gathering of the war clouds—and render our efforts abortive, or at least of doubtful utility.

Having decided that, strategically, speed is an absolute essential, we next require to ascertain the degree to which it should preponderate.

In our hypothetical cases, 19/15 has been the excess to the credit of the fast ship, this ratio being substituted for the original ratio of 21/17 used in the tactical question as the distances with which strategy deals preclude the employment of the utmost, the spurt, speed. The excess has produced as a result the successful striking of the first blow, on which the issue of a modern naval war may be expected to depend, culminating in the reduction of the slow fleet's gun-power by 8. The collective gun-powers of the remaining 24 ships of "B" and of the 36 ships of "A" will now be practically equal (though in consequence of "A's" ascendancy numerically and the practicability

of repairs, "A" will now be the stronger Power). But this result is not altogether proportional to the degree of the difference in speed; the advantage is either secured or it is not secured—there are no half-measures. If a disparity of four knots leads to the equalising of the gun-powers, a difference of two knots can do no more, except by making room for greater armament. We must consider what is the minimum excess of speed which will allow of the foregoing effect in respect to gun-power, and adopt a standard with which to calculate relative values.

In Case 1, "A" has gained his advantage through the ability of the Atlantic fleet to meet the Channel and "G" fleets before the arrival of the Brest fleet. Let this be our standard: a distance of nearly 800 miles to be covered in sufficient time and with a reasonable margin for battle. We have found a preponderance of two knots adequate for tactical purposes; it will also be adequate for the strategical problem, for the action at the North of Scotland will commence about six hours before the Brest fleet can put in an appearance, and though only a small portion of the time will be required for the battle, the remainder will be welcome as a respite, to recover and meet the Brest fleet if necessary.

In the tactical solution, we reduced the gun-power ratio to unity by increasing the fast ship's armament, and retained an excess of speed of two knots. In the strategical problem we have established the same speed predominance on the basis that 800 miles is a reasonable distance which a fleet of a naval Power may need to traverse to enable it to reach its objective before its opponent; but in the latter case the gun-power ratio is automatically, as it were, reduced to unity; therefore, the relative value of speed over armament is greater strategically than tactically in favour of the former.

The strategical solution then resolves itself into this: A ship must have $\frac{4}{6}$ of the armament of a ship of the possible enemy, numerically equal, with the stipulation that she has $\frac{17}{15}$ times her speed. This gives the relative values of speed and armament as 1.133 to .6, or 1.7 to 1—an empirical formula equivalent to the statement that for every consideration we bestow on armament we should give 1.7 considerations to speed.

Having assigned a specific relation between speed and armament, it now remains to be seen in what other particulars our finding may be confirmed or weakened.

Disregarding the extreme, the rather obvious cases, in which it is seen that excessive speed is no good to a ship if she can do nothing on "getting there," and, conversely, a powerfully armed ship is of no use if she cannot "get there," we have:—

For Speed.—A fast ship, being a shorter time making a given passage than the slow rival, is not so likely to arrive on the scene of action in a bad condition, either through dirty fires or through fatigue of *personnel*. In the case of a fast ship, the employment of the spurt speed would be of shorter duration on account of the greater distance covered; therefore, the situation may be such that the fast ship would be able to use her spurt speed for the whole journey to take up a strategical position, and arrive there in fairly good condition, with possibly an interval for a "stand easy"; while the slower ship, having a longer period in which to steam, is obliged to fall back on a speed lower than her spurt speed, and thus takes longer—in proportion to the difference in their respective capabilities

—than the faster vessel, to make good the same distance, the slower ship probably reaching the scene of action in a worse condition than her adversary.

The fast fleet possesses greater facilities for the correction of strategic errors; and, likewise, changes in strategy imposed by alterations in politics involving other Powers than that or those with which war was first declared, are facilitated.

The fast fleet does not require to be continually taxing its strength by steaming at full speed, which may be considered a latent asset.

Fast fleets or single ships would be able to move with greater expedition to and from their bases for supplies and repairs. Inferiority in speed would paralyse an admiral with a nervous fear to divide forces for any strategical reason.

It would be easier for the fast ship to evade torpedo, and especially submarine, attack.

The fast ship, though deficient in armament, will be able to inflict *some* damage, while the slow ship will be wasted through inability to bring her mighty armament into action.

Probably the fast ship would be able to disregard unfavourable weather in carrying out a strategic movement; she would be more likely to have the power of using her speed in a seaway than her opponent.

The fast fleet need not fear the concentration against it of a more powerful enemy, for it can refuse battle.

A slow fleet would require to be backed by a larger cruiser and torpedo fleet, to limit space and to keep the fast battle-ships in action.

For Armament.—If the slow fleet *can*, by land configuration, torpedo craft, or other means, contain the enemy, it will defeat him.

The nation possessing the long, fast ship is, or may be, handicapped by docking or berthing difficulties. This is, however, principally a matter of expense, in which we have decided there will be no compromise.

It is easier for a slow ship to escape from a faster ship than for a fast ship to catch a slower.

Superiority in speed is an asset the possession of which is more precarious than the asset of armament. The latter receives better protection than the former.

Undoubtedly the last consideration in favour of armament is a very cogent one—more, perhaps, from the point of view of tactics—especially when we reflect that such knowledge might lead to the slow ship aiming at the reduction of this property of her opponent. On the other hand, the degree of significance of the fact may be reasonably disputed on the grounds that the speed of the slow ship is also liable to reduction, and the ratio consequently to be maintained, and that the fleet which secures the “S” conditions at the preliminary stages has the advantage of more accurate marksmanship for a certain period before losing or risking its preponderance in speed—sufficiently long to virtually assure the result of the battle in its favour.

Taking these particulars and pitting them one against another, with due regard to the number in favour of speed, it appears that the relative value of speed over armament, which we have assessed, is enhanced to no inconsiderable extent. Various of the considerations carrying weight in the tactical also affect the strategical

problem, and serve to confirm the opinion formed. For instance, the facts that speed would inspire confidence in the admiral, that battle may be accepted or refused, that greater facilities are offered for correcting errors and taking advantage of those of the enemy, must necessarily exercise some influence in a naval war. It would be difficult to exaggerate the importance of the power of accepting or refusing battle. For strategical reasons it may be essential for a fleet to engage an enemy or to avoid an action, and the outcome of the war may depend on success in this respect. Naval history points to few instances where *both* belligerents wished to fight in the first place, or to prolong the action to a decisive finish.

When we further take into account the strategical benefits which may be derived from forcing a nation to keep large contingents concentrated by the presence of a weak, but faster, squadron, the value of speed can scarcely be gainsaid.

An author in *Blackwood's Magazine*, of October, 1906 ("The Speed of the Capital Ship"), lays stress on the extreme case of Nelson's chase after Villeneuve to demonstrate the small value he attaches to speed strategically; and he practically shows that it is inversely proportional to the difficulties of scouting and communication. In a problem of this nature it does not appear reasonable or desirable to go to extremes. It is in comparatively short distances in one theatre of operations that speed is likely to tell, not in long journeys from one theatre to another.

The writer of this paper hopes he may be forgiven for naming friendly countries in the discussion. He has done so merely for the sake of providing a simple example to illustrate what may be accomplished by the side with greatest speed in offensive and defensive measures, and the extent to which the other side is handicapped by its absence.

It might be suggested that undue relative prominence has been given to the tactical theme, but it is anticipated that the efficiency of the ship judged from the tactical standpoint should constitute a primary consideration without the establishing of which the strategical question must, seemingly, be presented in an incomplete form.

CONCLUSION.

It will be admitted that, on the whole, our result, strategically, gives the lowest estimate of value in favour of speed. It is partly based upon the fast fleet securing the *minimum* "S" factor, whereas, in a war such as has been outlined, there is little reason why, within limits, the best conditions should not be awaited.

It is even suspected that in the tactical question the effect of glare as a reducer of gun-power has been underrated. It is not necessary to go to sea to realise the annoyance and difficulty due to firing in the face of a relentless sun; but when we take into account the irritation caused by the gleam of sunlight on the water; that the advantage resulting may be maintained by the fast fleet by the simple process of preserving the bearing for the short duration of a naval action; that the benefit not only exists when the sun is near the horizon, but also when he has considerable altitude; and that even if the gunlayer is able to make tolerable shooting under these adverse circumstances at the beginning of the battle, his eye will soon be dazzled into exhaustion—when we take all this into account, it

seems excusable to fear that the co-efficient '6 for reduction of gun-power may err on the side of leniency.

In the strategic problem, in both cases conclusions have been arrived at on the fair assumption that two of the fast fleets engage one of the slow fleets; should this exceedingly likely meeting not take place, there is no reason to doubt that the combined fleets will come in contact in course of time, and when the most opportune moment occurs.

Wind and sun, affecting the "S" conditions, are not mere transient incidents; bad weather, or sunshine, lasts for days consecutively, and we generally can form some idea of what the morrow will bring forth; so the fast fleet can afford to wait and make its dispositions accordingly, and should be able to assure the best use of the "S's."¹

The determination of precise relative values in a problem in which we are so much in the dark will appear to savour of the fanciful. As has been said, a great deal depends on supposition, and it would be ever impossible to obtain specific data where the unexpected may—as in the Far Eastern war—upset our calculations; where, upon one well-placed shot, killing the commander-in-chief or throwing confusion into the enemy's line by the destruction of the leader's steering gear, may hang the result. If wrong values are attached, or if faulty strategy has been employed, it can only be submitted that, being conceived by one mind, however deficient, any errors will be correlative to the main factors dealt with. Should criticism or later experience award other values, say, to the "S" elements, this paper need not be quite discredited on that account, but might be applied to negotiate the question with the new data.

Sacrifice.—In answering the final part of the question constituting the subject of this paper,—how far speed and armament should be sacrificed to one another in the ideal ship,—as different relative values have been determined for the tactical and strategical considerations, a compromise between the two is, at first sight, suggested. The sacrifice entailed is not, however, entirely governed by these quantities, for in strategy speed has permitted a decisive result without the full use of the armament. Tactically, the relative value in favour of speed is 1.283 to 1; strategically it is 1.7 to 1.

For the reason that for the former the lowest "S" advantage has been assumed, while on the strategic side we have the same factor in conjunction with another factor, concentration, having its origin in a certain excess of speed, if we use the tactical figure, the ship will meet requirements as far as speed in strategy is concerned; and if we use the strategical figure, the ship will be deficient in gunnery so far as tactics are concerned. Thus, tactically, sufficient speed is required for the attainment of a certain position; while, strategically, speed is required not only to secure this position with antagonistic fleets numerically equal—as in tactics—but to secure it and the

¹ If the fast fleet is unable to wait it is not unlikely that the cause is the presence of the adversaries in confined waters. In this case it is reasonable to suppose that what cannot be obtained by the use of the "S's" may be secured by land configuration or other similar advantages facilitating such manœuvres as "T-ing." It does not seem extravagant to expect that some benefit equivalent to the lowest "S" value will be derived from the possession of the preponderance in speed.

assembly of two fleets to the enemy's one; for tactics, by their nature, do not deal with the concentration of fleets for definite purposes, but with the fighting of the battle once the rivals are in touch.

It will be observed that in the tactical section, after the discussion of the battle between fleets having certain armaments and speeds, it was found that, using the lowest "S" factor, the fast fleet was defeated; its armament was, therefore, increased, and its speed decreased in order to equalise matters, with the result, modified to more modern conditions, that the relative value of speed and armament was assessed at 1.283 to 1.

In the strategic problem, however, the relative value was found by reducing the speed of the fast fleet without increasing its armament; that is to say, the country possessing the faster fleet could win the command of the sea with ships of which the whole displacement at the disposal of the constructor was not utilised for the mounting of guns. Thus a relative value was established, with something in reserve; which signifies that the fast fleet might probably consist of smaller ships, or that some space could be appropriated for other purposes in the big ship.

But though, tactically, an increase of armament was found essential, entirely outside strategical considerations, it appears reasonable to suppose that the spare space in the fast ship of the strategic problem will be filled by guns, and consequently that, though the relative value of speed and armament strategically is 1.7 to 1, sacrifice in armament to such a degree as this represents is unnecessary.

The question resolves itself into whether our ship is to be built for strategic or for tactical purposes. If the former, then our object will be to always assure bringing a greater number of ships than the enemy into action; if the latter, then we must assure bringing at least an equal number against the enemy. Is the ideal ship to be designed for one or both of these objects, and can the strategic ship attain both? No, because she is designed for combination, and has too weak an armament to meet on equal terms numerically. Can the tactical ship attain both these objects? Yes; she can defeat an opponent in equal numbers, or she can meet him in preponderating numbers.

Then let the tactical ship be the ideal ship. Her relative value of speed and armament is, we have concluded, 1.283 to 1; hence, the inverse, viz., .779 to 1, is the ratio in which speed should be sacrificed to armament, and *vice versa*. But, in view of the higher relative value strategically, the speed of a battle-ship must not fall below that of a probable enemy; two knots is shown to be an effective excess; then the sacrifice of armament must be limited by the above ratio, the size being increased as necessary to satisfy the constructor's requirements. If, disregarding the fast battle-ship with magnified torpedo outfit, the probable enemy imitates the design, well, the great naval Power must rest content to win her battles with ships of equal qualifications, by geographical advantages and greater personal efficiency; or she must go one better and establish a higher speed, whether secured by turbine or reciprocating engine, and consequently—with the same ratio of sacrifice—increase the size of her ships.

With such competition, the most wealthy country will have the last word, and, given efficiency, the richest country wins; when she lacks possibilities, through natural conditions, with respect to size, she will make up the deficiency in numbers "which alone can annihilate."

To use an oft-repeated platitude, there is no finality in the construction of war-ships—except that due to cost, and for a country whose navy is a defensive, not an aggressive, weapon, this must be the last consideration.

It has been said that anything can be proved by figures. If this is so, and is applicable to this paper, it cannot be helped. It is not partisan; impartiality has been, above all things, attempted, any existing bias removed, and the subject discussed on its merits. Those holding different opinions as to the final result would do well to revise the various details to suit themselves, and see at what conclusions they arrive.

THE SWISS MILITARY SYSTEM.

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On Thursday, 7th November, 1907, at 3 p.m.

Field-Marshal The Right Hon. The Earl ROBERTS, H.C., K.G., etc.,
in the Chair.

THE paper I am about to read is a lecture delivered on September 9th last, at Fribourg in Switzerland, to the members of the British Committee of Inquiry which visited Switzerland for the purpose of seeing the Swiss Army at manœuvres and of learning something about the working of the Swiss Military System.

I would ask you to bear this in mind when listening to my paper, especially as the conditions have changed somewhat since the lecture was originally delivered. The most notable change is, of course, that the law for the reorganisation of the military system, which is occasionally referred to in my lecture, has now been accepted by the Swiss people by the voting on "referendum" on November 3rd last. By this vote and by a majority of 62,343 in a poll of 597,558 the Swiss nation has again demonstrated its determination to make continual progress in military efficiency and has given an example of patriotism to the whole world.

Last year when I was in England I had occasion to discuss the Swiss Military System with a person of importance. After listening to my description for some time he asked: "Who is responsible for this system? Who designed it?" This struck me at the time as symptomatic, for the answer to this question is, of course, that no one individual is, in any way, the author of the system. No Secretary of State invented it, as would be almost indispensable under existing conditions in England. No great man arose and persuaded his countrymen that such a system was necessary for them and for their safety. It grew up gradually with the political life of the people of Switzerland—part and parcel of the general social system which regulates their existence. Its origin is to be found in the ancient measures for combined military action which the gallant mountaineers adopted when they first began in small divisions, which were the genesis of the present day cantons, to fight side by side to keep the enemy from ravaging their homes. Its growth has been gradual, like the growth of the Swiss nation, and its present state is due to the loyalty of the Swiss people to each other and themselves, their indomitable sense of independence, and their fine virility of spirit. It is essentially the opposite of conscription, being founded on the collective free will of the people. Consequently, among the people as a whole there is no complaint of the burthen of the Army, of the hardships of the service, of the discomfort and expense. There is the thoroughly healthy and natural view that it is each

man's duty to protect and uphold the honour of the country of his birth and affections, and each man's duty to be so trained as to be able to render his service in the most effective manner. The keynote of their attitude is, that it is a free man's right and honour to serve his country, and a disgrace to shirk this honourable duty. Those who are unable to serve owing to physical deficiency are honestly pitied. The few—the very few, who refuse to serve and leave their country are thoroughly despised. It very rarely happens that a man refuses to serve. Cases have been known, however. The usual punishment awarded by court-martial is three months' imprisonment for the first offence, increasing with each successive training which the offender misses.

Although the Swiss are an extraordinarily patriotic people, the authorities and the people themselves recognise the fact that compulsory service is indispensable, if the military machine is to be made to work satisfactorily.

I was present at two interviews last year when an English Member of Parliament asked certain very high officials of State in Switzerland whether such a system as the Swiss Militia system could be maintained on a volunteer basis. The answers were most emphatically in the negative.

When the nation as a whole demands service of its sons it cannot be left to the individuals to decide when or how they will render the service, if at all. The duty of protecting the interests of the Fatherland belongs to each individual in equal degree, and it is considered preposterous that any individuals should shirk this duty and shift it to the shoulders of others, braver, more energetic and more conscientious, and yet continue to participate in all the advantages the service of those others brings to the country. How would the business of any commercial concern prosper if, one fine morning, it were announced to the clerks that there was no obligation as to doing their work—it was to be left to their consciences to do it or not, as they pleased? Again, in an English public school, if there were no compulsion on the boys to play games, would not all the slackers, just the ones who benefit most by games, loaf about and leave the games entirely to the keen and energetic ones?

Military training, to be effective, especially if the time is short, must be regular, punctual, uniform, and simultaneous. To ensure this there must be rigid authority.

The Swiss do not hold with the arguments of those who protest that the soldier who has volunteered is alone of any use. They know uncommonly well that proper discipline and manhood will make a man a reliable soldier, whether he volunteered in the first instance or not.

Their own history shows numberless instances of their countrymen fighting magnificently for causes in which they had no interest. English history also. Again, there does not appear to have been much wrong with the fighting spirit of the crews of Nelson's battle-ships or of the rank and file of Wellington's battalions. Yet many in both services were anything but volunteers when they joined. For a long time past Hunger and Want have been the recruiting sergeants of the British Army. Yet that Army has been known to do some good fighting now and then, although the number of real genuine free-will enlistments in it can only amount to a small percentage of its strength.

Men of spirit will fight as a matter of course. The real obstacle is the ignorance—first and foremost the ignorance—then the indolence and self-indulgence which prevents all classes of a people from presenting themselves in a body for training. It is to overcome this difficulty that wise nations—made wise by experience—have instituted laws obliging the individuals to do their duty. However willing the men of a nation may be to fight when war comes, the vast majority of individuals have not foresight, self-control and methodical habit sufficient to induce them to prepare for war. When war really comes it is much too late to begin.

Modern war between the great nations, through the advances of science and the perfection of communications characteristic of modern civilization, will be waged with every ounce of force brought to play. It is essential therefore that a nation intending to maintain its place in the world must with all its will-power so organise all its man-power and material resources as to be able to make the utmost possible use of all its forces. A nation which fails in this duty to itself gives clear proof that it is in a state of decay and that the inexorable processes of Nature will remove it to make way for others healthier, more vigorous and worthier.

The Swiss nation understands this, and this is the reason why the Swiss Militia Army is, in spite of its smallness compared with the surrounding armies, a far more effective guarantee of the independence of the Confederation than all the treaties ever written.

There is in the country the conviction that, apart from the probability or possibility of the Army being required for the defence of the country, the training to arms and the discipline are morally and physically of the utmost direct advantage to the manhood of their race, and indirectly to the whole people. It is a school for the nation, and, as almost all Swiss in responsible positions will tell you, they say: "If we had not got the Army we should have to invent something to take its place." But the Army must not be regarded as something apart, a separate entity, in Switzerland. It is an intimate factor of the social life of the people, and, in many respects, the backbone of the nation. This is the case to an extent not easy for a stranger to appreciate. To do his military service appears the most natural and matter-of-course business to a normal man, and all Swiss men, officers and privates alike, seem to take great pleasure in their periodical trainings, which represent healthy outings, with plenty of real hard work in beautiful country with cheery companionship, and the satisfactory sensation of really doing something for the land they love so well.

One advantage of this system, not intended but resulting from it, is that few men marry until they have completed their recruits' courses—that is, till after their 20th year of age. Hence, improvident early marriages, so frequent in England, are very rare here. Again, when it is a question of marriage, it is no recommendation in the eyes of the girls that the man has been registered as unfit for military service. This is an additional reason for regarding such rejection as a stigma.

The accident of geographical position is a cause contributing to the existence of the Swiss military organisation. The military importance of Switzerland in the abstract is very great. Her frontiers are coterminous with those of France, Germany, Austria, and Italy. Each of these Powers would be gravely embarrassed in case of war if the

enemy could make use of Swiss territory. From Switzerland the road is open down the great valleys of the Rhine, the Rhone, the Danube, and the Po. The lines of defence of each country could in succession be turned from this central position. Though the integrity of Switzerland was guaranteed by the Powers at the Congress of Vienna, and by the Act signed at Paris on 26th November, 1815, Switzerland herself is not of the fibre to accept protection from outside without doing everything possible to render her own defence of her territory effective in itself. She wants no foreign armies, friendly or otherwise, on her soil. Her experience in this sense has been too bitter. She has had too forcible an object lesson of the fate that overtakes a people which, lulled by a long period of peace and a false sense of security, neglects to maintain its proper defences in good order and ready for service. To refer to this most instructive passage in her history in rather more detail, I may remind you that the practical independence and freedom from attack of Switzerland as regards the German Empire commenced in about 1500. During the 16th century, the Italian enterprises, in which the Swiss fought in the Marignano campaign, against the Venetians, the Papal troops, the Sforza, and the Milanese. This fighting came to an end about 1590. From then till 1798 the Swiss were entirely unmolested. It was during this period that, although not blessed with a Blue-Water School to sap its virility, to tempt it to depend for its security on mechanical appliances and a small number of trained experts, the Swiss people forgot its duty to itself and its country, neglected its training as men and patriots, omitted to maintain its organisation as an army, and unwittingly prepared for itself the awful retribution which was to follow, from which it has not, even now, entirely recovered. During this period they lived on the prestige of their fighting ancestors—they foolishly imagined that the fine qualities their fathers had acquired by blood and sacrifice had descended to them without an effort on their own part. They looked down on all foreigners with supreme contempt, and thought themselves, because unmolested, the terror of their neighbours. They fought among themselves, Catholics against Protestants, groups of cantons and single cantons against each other. But these operations, which one may call of a minor expeditionary character, were no preparation for a collective effort of the whole nation. No doubt, also, they said to themselves: "If the worst comes to the worst, we are sure to muddle through somehow." At the end of this halcyon period they had small cantonal contingents, it is true, and their men were still brave, but they had no organised armies, no artillery, no staffs, no train, no capable and trained leaders.

The time of sorrow came with the advent of the French Revolution. The French revolutionaries regarded with displeasure the system of Government in Switzerland—the influence and popularity of the old aristocratic families, the prosperity and happiness of the land. They demanded that the Swiss should change all this and revolutionise, too. The Swiss no doubt were astonished that they should be addressed with such temerity—they, the heroes of a thousand fights—fought by their ancestors be it noted—to be thus addressed by the foreigner. They refused, and the French carried out their threat of using force to compel them. Hastily the Swiss called up their scanty and ill-organised contingents. When the shock of battle came the Swiss found that the prestige of their fathers was not

enough to defeat the enemy. Infuriated, they turned on their own leaders and murdered them as traitors, failing to recognise that it was the whole nation which had betrayed itself. Their armies dissolved. They had one or two minor successes, due to the inherent gallantry of the Bernese men, but at Grauholtz finally they were thoroughly beaten. The struggle continued all over Switzerland with desperate fury. Even women and children took part in the actual fighting, but the Swiss forces were beaten piecemeal everywhere. About 50,000 men and 4,000 women fell in these battles. The slaughter was even continued in the churches, whither the women and children fled for protection. After this the Revolutionary troops robbed the country of everything movable it possessed: money, pictures, plate, jewellery, furniture—everything that could be looted. They simply ate the whole country up—they ravaged and outraged and destroyed and stole, so that rarely in history has so complete a disaster ever overtaken any people.

The French even carried off the able-bodied men as conscripts to fight. The Swiss were forced to maintain a permanent contingent, 15,000 strong, to fight for Napoleon in Spain, Italy, Germany, Austria, and Russia. The Emperor appreciated their fighting capacity, for he left 15,000 Swiss as a rearguard on the Beresina, where, true to their traditions, they fought magnificently, between 7,000 and 8,000 being actually killed.

After the French came Austrians, Russians, Italians, and Germans, the country became a veritable cockpit—the invading armies brought typhus and other hideous diseases with them, and, further, so exhausted the resources of the land that the Swiss themselves starved in thousands. It was not till 1815 that this dreadful state of things came to an end by the Treaty of Paris which guaranteed Swiss integrity. But the Swiss have learnt their lesson, with the result that they are the real nation in arms you see round you to-day. Their determination now is to make it clear that any violation of their territory, even by the army of the greatest of Powers, would be so difficult, expensive, and dangerous an enterprise that nobody is likely to attempt it. The Swiss people believe that God helps him who helps himself. They have been renowned for their fighting qualities ever since European history became history, even during the period when they so much neglected their own military organisation at home. They fought abroad under the flags of many nations and, indeed, of individual employers. Their courage, discipline, and fidelity have been remarkable wherever they served. It is characteristic of their fine soldier-like spirit and bulldog pluck that, no matter how much they may have disapproved of the cause in which they fought when forced to fight as conscripts—once committed to the fight they appeared to think that their honour as men demanded that they should never give way. With this spirit animating them they always fought in a manner worthy of the highest admiration. As a people they thus suffered from their very merits.

The Pope's bodyguard was originally entirely composed of Swiss, and it may interest you to hear that for 300 years, uninterruptedly, it was commanded by ancestors of our friend and guide, Colonel Pfyffer v. Altishofen. How the Swiss guard fought at the Tuileries in 1792 is recorded on the Lion monument at Lucerne. England frequently made use of Swiss legions. In the Peninsular and

Waterloo Campaigns, for instance, and for the last time during the Crimean War, when two light infantry regiments were formed, called the British-Swiss Legion, under the command of Colonel Dickson. As a rule the men of the Swiss contingents made it a condition of service that they should be commanded by Swiss officers; but they often contentedly served under British officers. There are many still living in Switzerland who served in Naples, and in other contingents abroad, but of late years the practice has completely ceased.

The constitution of 1848 put an end to conventions between the cantons and foreign Governments, or rulers, for the supply of contingents, and the Swiss now satisfy their military tastes and instincts with a whole-hearted devotion to their duties as "Wehrmänner" or "Defence-men," as the phrase is, in their own country.

That the Swiss are a people ready to recognise the shortcomings of their system, and are continually endeavouring to remove them, is proved by the frequent minor changes in the Army system that have been made from time to time, and by the proposed law for the reorganisation of the Army, which is now awaiting the final vote of the people on "Referendum" on 3rd November, 1907. The Army organisation on its present basis was introduced by the law of 1874. In 1871 the presence of Bourbaki's Army on the frontier, just before it was driven into Swiss territory, caused the Swiss to mobilise a part of the Army. 19,000 men were collected, but this operation was attended with so much difficulty, and disclosed so many shortcomings, that public opinion was strongly aroused, with the result that the law of 1874 was passed which brought about an immense improvement. Since then the Army has been steadily improving, though it is still very far from perfect or from coming up to the standard desired by the best citizens of the country.

It is an interesting fact that the Swiss were, after the English in olden times, the first people in Europe to adopt the system of universal liability to military service. The Militia system has been in vogue among them for the last 600 years. The three primitive cantons, Uri, Schwyz, and Unterwalden, first started it to defend themselves against Austrian tyranny—Lucerne, Zürich, Berne, and other cantons joined the confederation in succession, but for centuries the Swiss were continually under arms, fighting with outside enemies to preserve their independence, and with each other to settle their domestic quarrels. This, of course, was magnificent training, and explains why the freeborn Swiss soldiers, fighting for liberty in a mountainous country, were so much the superior of the pressed men or ordinary mercenaries of the potentates of the surrounding countries.

From its organisation the Army in Switzerland is entirely a citizen force. In it all classes, all trades, all professions are represented, and the peculiarities, qualities, and capacities of each class, trade, and profession are very much turned to account for the benefit of general efficiency. The doctor and chemist in civil life serve in the Medical Corps; the electrician, engineer, and mechanic in the engineers; the bus and cab drivers as artillery drivers; the farmers and horse-owning classes in the cavalry; butchers and bakers in the supply departments, and so on. Thus, for many, the military training is not even an interruption of their usual occupations, for they continue them, not for their own interests, but in pursuit of a greater end.

The Swiss Army is the most democratic organisation in existence, and is an exact mirror or microcosm of the nation. All have exactly the same obligations, rich and poor alike. No man can become an officer without first doing his duty as a private and proving further his qualifications for promotion. The only differentiation of any sort is made in the matter of taxes levied in lieu of duty performed. These taxes are imposed on those who, for physical reasons, are unable to serve in person, and in this way contribute towards the defence of their country. The tax varies from 5s. a year in the case of the poor man, to £120 in the case of the rich, being determined by a regular scale assessed according to income and means.

The details of how this tax is calculated may interest you. 6 frs. or 5s. is the poll-tax. 1 fr. 50 or 1s. 3d. is charged for each 1,000 frs. or £40 of actual property, and for every 100 frs. or £4 actual income. The income tax is only charged on income exceeding 600 frs. or £24 per annum, and on property exceeding 1,000 frs. or £40. The men of the Landwehr pay half-taxes, and not more than £60 in all.

Although the Constitution lays down the liability for each Swiss citizen to serve—irrespective of all considerations except physical fitness—a certain number of officials and State employés are considered by the nature of their employment to perform services equivalent to military service to the State, and hence are not required to serve with the colours. Members of the Federal Council, some members of the Federal Tribunal, employés of the arsenals, prisons, railways, hospitals, posts, and telegraphs, etc. The duties of these are certainly almost as important in war as those of the fighting troops, and are quite indispensable. Hence, these men are not called out when in the employ of the State.

Swiss living abroad have to pay the tax or perform all the service omitted when they return, if of an age to come under any of the categories into which the Army is divided. The non-payment of the tax or the non-performance of the military duty deprives the Swiss citizen of his civic rights.

By Article 8 of the Constitution, the sole right to declare war, make treaties, etc., is vested in the Confederation. The executive power is exercised by the Federal Military Department. This Department consists of the following offices:—

- 1st. The Secretariat;
- 2nd. The Division of the General Staff with five sections and a Secretariat.
- 3rd. The Divisions for Infantry, Cavalry, and Artillery.
- 4th. Division for Engineers.
- 5th. Division for Medical Services.
- 6th. Division for Veterinary Services.
- 7th. The Central War-Commissariat.
- 8th. The Technical Division for war *matériel*.
- 9th. The Administrative Division for war *matériel*.
- 10th. The Administration of the State explosives factory.
- 11th. The State horse dépôt.
- 12th. The Division for Ordnance Survey.
- 13th. The Administrative Offices for the St. Gothard and St. Moritz Fortifications.

In the event of war being declared, the Federal Assembly elects a general for the supreme command. At no other time is there a

general in the Swiss Army. Officers with the rank of colonel command army corps, divisions, and brigades, carrying out the duties of officers styled generals, lieut.-generals, and major-generals in other Armies. The last Swiss general was General Herzog, who commanded the mobilised Swiss troops in 1871.

The chief of the Military Department—a function corresponding to that of our Secretary of State for War—is always a member of the Federal Council. At the present time it is Federal Councillor Forrer, who last year was President of the Federal Council, while President Müller was then Chief of the Military Department. Herr Forrer is one of the few Swiss who has no personal experience of military duty—having been exempted as a young man. He has several times spoken with regret of his lack of personal experience of the Army, and once told me jokingly, that his son, a young officer in the artillery, could do the job much better than he could. But the fact remains that his administration is extremely successful and extremely popular with all ranks in the Army. This is worth noting, as it shows that in a country in which the majority of the inhabitants have personal knowledge of military matters, and in which all are directly connected with the Army, a civilian War Minister, with the breadth of view and administrative capacity of the present Chief of the Military Department, can be considered an unqualified success.

The Swiss military system is founded on sound and lasting principles. Hence, no violent changes are necessary. The conditions change slowly, and with it the organisation undergoes slow processes of ripening and perfecting to bring it into line with modern requirements. A succession of conscientious and hard-working officials is the chief requirement to keep the machinery well oiled and in working order, while the people themselves decide the character which its military organisation shall have, and have to give their sanction before any changes of importance can be carried out. The organisation is complete, and admits of the whole potential force of the country—human and material—being employed. It is now only necessary to work continually at the perfection of the parts, and to carry out such changes as may be necessary to keep the organisation up-to-date.

The General Staff of the Army includes the General Staff Division at Headquarters, and colonels, lieut.-colonels, and majors on the Army Staffs, and as Chiefs of Staffs of the Army Corps, Divisions, and brigades; also captains serving on all the staffs. A small railway section is formed in the General Staff, and on war breaking out an administrative and executive railway section formed from the *personnel* of the State railways joins the General Staff. Some details as to the General Staff may interest you. Occasionally, some of the professional officers of the Army are ordered to join the General Staff, and to command units. But, generally, it is recruited in the following way. The names of about four times the number of captains required as candidates are submitted every year for selection by their superiors. The lists have to pass through the hands of some seven or eight separate authorities for approval. Then the Chief of the General Staff at Army Headquarters selects some 20 of these officers, after carefully ascertaining their capabilities, for appointment to the General Staff. These officers are then asked if they wish to serve on the General Staff, and if they will guarantee

to perform the largely increased duties required of them. On accepting, the captain is told off to General Staff courses, lasting 16 weeks in all, and then to perform other Staff duties. The period of first appointment is for four years. The General Staff officer then rejoins a unit. If all his General Staff service, and service with the unit, is satisfactory, he may be re-appointed to the General Staff, and may even complete his service in it. Formerly, it was contrary to regulations for an officer to remain continuously in the General Staff. The General Staff courses are very good, and besides, General Staff officers have to devote themselves largely to theoretical study, take part in staff rides, etc. The Federal authorities appoint and promote officers of the Staff and higher units, also the officers immediately at the disposal of the Federal Council, Secretariat officers, the officers of the troops furnished by the Confederation, and the field officers of the rifle battalions.

The cantons exercise the same functions for the officers of troops furnished by the cantons, up to the rank of field officer.

In all branches of the service officers have to pass through preparatory courses and courses before promotion—called schools. These courses usually last a few weeks—for appointment to the General Staff the first is 10 weeks, and the second 6 weeks. In all these courses the instruction imparted is of a very high class, and the amount taught in the short time available is astonishing. The extreme care with which all the details of these courses are worked out, and the wonderful manner in which they are dovetailed into the social life of the country, so as to be as effective as possible, while causing the minimum of inconvenience to the officers—who, in the vast majority of cases, are professional or business men, with affairs of their own to attend to—is characteristic of the perfect genius for organisation which the Swiss people possesses.

It would carry me too far if I were to give you details of these courses, which can be studied in the publications on the subject. It is sufficient to say that they are carried through in what I may call an "intensive" and serious spirit on the part of instructors and learners alike, and produce results altogether out of proportion to the number of days devoted to the work. Even the Polytechnic Schools contribute instruction, and have special courses for the study of military and military-technical subjects, through which officers desirous of promotion in certain branches must pass. Proposals are under consideration that the Cantonal Universities should give lectures also on military subjects.

In order to ensure uniformity in the military instruction, there is a permanent body of instructors of about 220 officers and non-commissioned officers. These are practically all the permanent troops existing in Switzerland.

The officers of cantonal troops are nominated on the recommendation of the cantonal military directors, and, after passing the qualifying schools, by the "Grosse-Rath," or Council of the Canton. The first promotion is by seniority, but further stages are largely by selection on the recommendation of the military superiors. A Swiss soldier may become a captain after about 360 days' work in the various schools—besides the days required for other courses, such as musketry, manœuvres, etc. Up to the rank of colonel the time is about trebled. The actual amount of time spent in obligatory professional work by the Swiss officer is less than the time a Militia

officer in England spends at trainings, etc. But the results achieved in Switzerland are certainly much better, owing to the amount of voluntary theoretical study the average Swiss officer gives to his work, the seriousness with which the matter is treated, the completeness in all details of the military organisation, and the actuality, the living reality of everything. North, south, east, and west, the Swiss soldier-citizen sees other soldiers with whom he can compare himself, and whom he may some day have to fight in defence of his home and belongings.

In addition, there is the great practical reason that the system supplies the men at the right time and place, so that the training can be carried out in the most efficient manner.

A further most important point which contributes in a large measure to the efficacy of the Swiss training is the liberty of manœuvre over the country allowed by law, and supported warmly by the public spirit of all the inhabitants.

The Swiss Army is very simply formed into units, as follows:—The whole country is divided into eight divisional districts. In each of these the recruiting of infantry for that division is carried out. The recruiting of the special arms is carried out under separate arrangements, in order to get the most suitable men for the various arms requiring special qualifications. The eight divisions form four Army Corps. Each division has two infantry brigades of two regiments of three battalions each. Each division has also a squadron, called a "Company," of Guides Cavalry, one field artillery regiment of two brigades of three batteries of four Q.F. guns each. Further, a half-battalion of engineers, and a divisional field hospital. The corps troops of an Army Corps include one infantry Landwehr brigade, one cavalry brigade of two regiments of three squadrons each, one regiment of field artillery, one corps park, one bridging division, one telegraph company, one corps field hospital, one corps supply section with a supply train. Here, again, I would like to insist upon the completeness of all the units and auxiliary services. The whole organisation is complete, men, horses, vehicles, equipment, etc. On mobilisation everything springs instantly into existence, and every man at once takes the place and performs the duties assigned to him.

As far as the performance of duty with the colours is concerned, the Army is divided into three categories: the Auszug, the Landwehr, and the Landsturm. The Auszug includes all men fit for service between the ages of 20 and 32. The Landwehr includes the men of same category, after they have completed their Auszug service, until they reach 44 years of age, and the Landsturm includes all capable of serving between the ages of 17 and 50, who do not belong either to the Auszug or the Landwehr.

The total strength of the military forces of Switzerland may be stated thus in round numbers:—The Auszug contains 143,000 men; the Landwehr about 91,000 men; and the armed Landsturm, about 45,000 men. The Landsturm is not yet completely organised. This is one of the tasks upon which the military administration is directing its attention. It is partly due to the fact that the law governing the present organisation was only framed in 1874, that is 33 years ago, and the unarmed Landsturm ranks are only now coming completely under its influence. This is a proof of the length of time it takes for all the parts of a new military organisation to get into working order.

It is a matter of great importance for us to remember that if in England we were to adopt to-morrow, by a stroke of the pen, a system analogous to that of Switzerland, something like 30 years must pass before the whole great machine would be working. And in 30 years what serious events may not take place. Can we, all this time, rely on the forbearance, or international rivalries, of the continental Powers, or the insularity of our position, gradually getting less and less insular as science devises means for annihilating space—or on the unrivalled diplomatic skill of our beloved sovereign to preserve us in safety?

But to return from this digression.

The armed forces of Switzerland amount, according to the above figures, to about 280,000 men. The unarmed Landsturm is about 260,000 strong. The unarmed Landsturm is used, to a large extent, in the auxiliary services—such as "Pioneers," Medical Corps, drivers' and horses' attendants, guides and carriers in the mountains, signallers, workshop artificers, storemen and stores workmen, bakers, butchers, office assistants and clerks, cyclists, and about 60,000 are described as being "at the disposal of the military commands." There is thus no waste of the human material. As the Swiss population, of Swiss, nationality amounts to about 3,000,000, it follows that the armed men are in the ratio of about 1 to 11 souls, and the total available number of men who would fight or work for their country in time of war are in the ratio of about 1 to 6 souls of the population. Were our position similar to that of Switzerland, and were our forces in England organised for land defence on a similar basis, we should have in the United Kingdom alone, about four million armed men, and something like eight millions who would be available for military purposes of all kinds. I will not go into details of the various arms in the Swiss Militia, as they can be studied in the published tables, I will merely state that the artillery has altogether 312 Q.F. guns (of which 288 are for the Active Army), 30 Q.F. mountain guns (24 with the Active Army), 54 Maxim guns, about 80 4.7 guns for field and fortress work, 60 short howitzers of the same calibre, and about 400 older pattern guns in reserve. In England, in the same proportion to population, we should have over 4,000 Q.F. field guns.

The cavalry of the Swiss Army merits a few moments' special consideration. It has been under the influence of a great organiser, who has refashioned it of late years, and imbued it with a splendid and modern spirit. The men ride capitally, and with lots of dash. The use of the rifle is more fully indulged in than in any other continental cavalry. The scouting and individual work is as good as the training for shock tactics. You will be interested to notice also the use made of the very efficient Maxim companies or batteries, eight Maxims with each, which accompany the cavalry brigades.

The recruiting is special, and the recruits make special application to serve in this arm. They have to produce an official certificate, showing that they have means sufficient to maintain a horse, or a similar certificate as to third persons, who will maintain their horses for them if they are unable to. The recruits have also to come up to a high physical and educational standard. The result is that the cavalry soldier comes of a well-to-do class of the yeoman order, and the *esprit de corps* in this arm is very high. Families for many generations send their sons into the cavalry, and it is considered a sad misfortune, almost a disgrace, if a young man is not accepted

for the branch of the service in which the men of his family serve by tradition.

The supply of horses is kept up in a most peculiar and efficient manner. Just as the infantry soldier takes his rifle and equipment home with him, and keeps it till he is called out, so the cavalry soldier takes his horse with him. The State shares the ownership in a manner which has been proved to be highly satisfactory. The State buys the remounts at 3½ years old, and the soldier (also the officer) pays half the cost of the horse to Government, together with the difference between the cost and the auction price, as all the horses are sold by auction to the men. The great majority of the remounts, 98 per cent., are Irish or North German horses, only 2 per cent. are bought in Switzerland. The Irish horses are much preferred, and are being bought in an increasing proportion.

After each year's training—and you will remember that the cavalry in the Auszug come out for annual trainings—the Government refunds to the man one-tenth of the original half-cost price of the horse which, at the end of his Auszug service, is on the average 14 years old, and becomes the absolute property of the man. During his 10 years' Auszug service, the man is bound to keep the horse at home, at his own expense, and to join his corps with his animal when called out. The horse must be well kept, and is periodically inspected by the man's squadron officers, who, for this purpose, visit the men's homes. If anything is wrong a board is assembled, which decides whether the man or the State is to bear the cost. In this way it is ensured that the man is always well mounted, and the inspection visits of the officers to the men's homes are an additional familiar and pleasant tie between the officers and men in the cavalry. The man can use the horse in any way he likes, provided that his military readiness and efficiency is in no way impaired. The cost price for troop horses by the time they can be handed over to the men is on the average about £45 sterling. Thus the State secures the services of a good troop horse for an outlay of about £4 10s. per annum per horse, if the horse fetches no more than his cost price at auction. But they always fetch more, so the State in reality pays less than £4 per annum. This does not take into account the expense of keeping the young horses six months to acclimatise them, and a further four months for breaking in, nor wastage from sickness and casualties, or other causes. But the total cost to the Swiss Government for each available horse of the cavalry does not exceed £8 12s. per annum. In England the cost would be £7, covering all expenses. The great advantage is, that the State can at all times lay its hand at once on all the horses, trained and in good condition, required for the cavalry. The men are equally satisfied, for they get the services of an excellent horse under the most favourable conditions for their own pockets, that is to say, they are out of pocket only by the amount of the difference between the auction price and the valuation price of the horse—say, £6 or £7 on the average. This is a brief and very incomplete summary of the system, but it gives an idea of the principle which seems to me to be as near perfection for yeomanry cavalry as can be imagined. At the present moment the Swiss Government has some 5,300 cavalry horses in the hands of the men on these terms, and another 1,000 in the cavalry depôts and schools. In this proportion, and on the scale of the population in England, the Swiss would have about 82,000

cavalry horses. Of these about 70,000 would be with field troops. A very substantial force of cavalry, I think you will admit. The system, if applied in England, would, besides providing us with an excellent force of cavalry, also be a valuable encouragement to horse breeding in the United Kingdom.

It may interest you to hear that Colonel-Corps-Commandant Wille—who is largely responsible for the excellent present-day condition of the Swiss cavalry—told me a few days ago that this most efficient yeomanry system of the Swiss cavalry was borrowed from Hanover, where it had been introduced when Hanover was English. We may, therefore, claim with some justice, and to tickle our vanity, that its merits are partly English.

I will not enter into details as to the engineer, medical services, commissariat, and supply service, train, railway services, telegraphs and wireless telegraphy, ballooning, arsenals, and establishments, fortifications, etc. I will merely emphasise again that they are complete, existing, and working organisations ready for instant mobilisation. Many of them you will be able to see at work for yourselves.

The permanent fortifications of this country are limited to the defences of the St. Gothard and St. Maurice in the Valais. A small permanent establishment, engaged on civilian contracts, which may be terminated at short notice, is maintained to keep the buildings, guns, etc., in good order and up-to-date, but otherwise they are only occupied, in fact, on mobilisation.

With all these services the key-note is completeness and efficiency.

All the youths in the country, about 29,000 annually, have to present themselves to the recruiting officers during their 19th year. Of these about 52 per cent., or about 15,000, are accepted each year for service in the *Auszug*. The recruiting is carried out by the recruiting staff of each division, so as to be completed by the middle of October in each year. A physical and educational examination of each recruit is made. The educational requirements are reading, writing, mental and written arithmetic, geography, history, and the Constitution of Switzerland. Five categories of varying degrees of efficiency in each subject are laid down. This system has a considerable and encouraging effect on the standard of education in the country. A very small percentage of the recruits fail to pass the tests. At the present day, less than one-tenth of 1 per cent. After passing his examination the recruit joins a recruits' school, where in the infantry he puts in 45 very strenuous days' work—in the cavalry 80, and in the artillery 55.

It would, however, be quite incorrect to regard the Swiss recruit as a "raw" recruit when he joins, for he has done generally so much preliminary gymnastics, drill, and shooting during school and earlier years that the recruits' school is really the development of an already very fairly trained recruit. Education in Switzerland is one of the national institutions which has attained the highest degree of development, and it is one in which the people take immense interest. Physical education receives as much attention as mental. The boys are carefully taught the rudiments of drill in accordance with the principles of the military instructions, and also gymnastics. Shooting is the national pastime, to which every young Swiss aspires as soon as he can hold a rifle. In all the country districts wrestling competitions are very popular, and numerous attended. There are, further, the various Cadet Corps in Switzerland.

The Cadet Corps are worth a few words of explanation. In Switzerland primary education in the State schools, between, roughly, the age of 6 and 12 years, is compulsory in all classes of the population. Children aspiring to higher education pass into the secondary schools. Those that do not go into the secondary schools have, in some towns, to pass a qualifying test about the age of 16, for which they have to prepare in the winter schools, and by going to school for a day or two a week in the summer. But the boys between the ages of 12 and 18 in the secondary schools, and of the upper middle schools, called "Gymnasium," etc., are those which are the source of supply of the Cadet Corps. A difference of opinion as to the value of these corps still exists, with the result that in some cantons or districts, joining the corps is quite voluntary, while in others, as at Wintherthur, which you will see, it is obligatory. In the majority of cases it is voluntary. Up to 16 years of age the cadets get infantry drill, with a short rifle, firing the Government ammunition. They fire 30 rounds a year at the target under the conditions laid down in the Regulations. After 16 years of age the cadets join the Artillery Corps, which is supplied with 6-pounder breech-loading field guns. Each cadet fires two rounds of common shell annually, at about 1,000 yards range. The Communes, or Cadet Commissions, supply all arms, etc., and the Government pays a capitation grant of about 2s. 6d. per cadet. The instructors are the schoolmasters, or officers who voluntarily undertake the duty. A large proportion of non-commissioned officers and officers of the Army are old schoolboys who have served in the Cadet Corps. In 1905 there were close upon 7,000 cadets in Switzerland, and 3,206 fired through their musketry courses. In the proportion of the English population, the number would be about 98,000.

But the authorities attach far more importance to the voluntary preparatory military training, through which youths between 16 and 20 years of age may pass. The instruction is given by officers who volunteer to do so during a few hours a week. The object is "by graduated gymnastic exercises to increase the will-power, strength, and courage of the pupils." Special attention must be given to the military exercises of marching, overcoming obstacles, and shooting. In the third or last stage instruction is given in drill and musketry. In 1905, 6,132 lads passed through these courses. In proportion to our population, the number would be about 85,000. The Government draws up the programme for the courses, supplies arms, ammunition, the necessary equipment, pays expenses of various kinds, and encourages them in every way possible. So important are they considered that they will probably be made obligatory before long.

It is frequently asked how it is that with so much physical training the bearing and physique of the average young Swiss is not better. The explanation is, that systematic physical education is of comparatively recent origin in Switzerland. The physique of the people had, as a whole, considerably degenerated through centuries of confinement to their narrow valleys, and too much intermarriage. Switzerland suffered terribly, too, from the period of humiliation through which she passed at the beginning of the last century. Of late years Switzerland has been thrown open by the perfection of the means of communication, and the modern system of education has been adopted by the people in recognition of its necessity. The results achieved in these few years are very remarkable, but it is

necessary to wait a generation or two to see the full effect of the change in conditions.

Of the shooting in Switzerland, it is not necessary to say much. You, no doubt, all know with what private and public interest the art of rifle-shooting is practised in this country. I will merely mention that in 1905 there were 3,694 shooting clubs in existence, with 220,147 members. Of these, 144,344 members fired through the obligatory, and 78,443 through the voluntary practices. The grants to the shooting clubs amounted to £14,000. If the shooting clubs in England existed on the same scale, they would contain something like 3,000,000 shooting members, and would draw Government grants of some quarter-of-a-million pounds sterling.

The mobilisation of the Swiss Army is, perhaps, the most rapid there is. As already stated, each man has his arms and personal equipment—his horse, if a cavalry man—at home with him. These are always maintained in good order and constant readiness. Consequently, when the call is made, which is by proclamation in the case of ordinary courses and manœuvres, and by every available means in case of war—the man merely puts on his uniform and knapsack, shoulders his rifle or mounts his horse, says good-bye to his family, and goes straight to his mobilisation centre. Here, when the men are assembled, they fall in, the oath is read out to them, ammunition is issued, and they are ready for the field. No warrants are necessary; the man's uniform is sufficient authority for travelling by train, or any public means of conveyance. The issue of the corps *matériel*, vehicles and stores from the arsenals takes a little longer, but it is all effected in the minimum of time, as the stores are decentralised, so as to be available where wanted with the least delay. Here, particularly, the Swiss genius for organisation displays itself to advantage. The extreme, almost excessive, care with which all details are arranged is a guarantee that mobilisation can be completed in a wonderfully short space of time. There is little doubt that, if a mobilisation order were issued in the early morning, by the evening all the infantry, cavalry, and engineer units would be ready for the field. The artillery is slowest in mobilising, as it has to take up requisitioned horses. The examination, valuation, and distribution of these takes a little time. By the evening of the third day the whole armed force of the nation would be completely mobilised.

An interesting side-growth of the Swiss Army are the numerous societies or clubs formed to voluntarily practise certain military arts—apart from shooting and gymnastics. They arise from the great desire of the people to do something outside the strict letter of their duty to further the efficiency of their Army for the good of their country. Such are the officers' and non-commissioned officers' societies with very numerous memberships. In these debates, discussions, and lectures are held—tactical exercises carried out, military studies of all kinds facilitated by libraries, etc., and even addresses prepared to convey the opinions of the members on matters dealing with the organisation and administration of the Army to the Federal Government. There are, further, cavalry societies, pontooning societies, gun-layers' societies, pigeon-post societies, military musical societies; besides these, the auxiliary societies affiliated to the Red Cross, which instruct *personnel* according to the Regulations in force, prepare *matériel* for store, for transport and hospital uses. Annual grants to the extent of £1,000 are allotted for work in this field

in the direction of ambulatory lecturing, technical publications, and so on. The Central Association of the Red Cross has 30 branches, with 15,330 members. The Swiss Military Medical Society has 24 branches, with 550 working members; the Society of Good Samaritans has 163 branches, with 7,111 active members. On the scale of the population of England these societies would number together about 400,000 members.

I have heard the argument used that the introduction of a system of compulsory service in England would kill all volunteering and the voluntary spirit. If the Swiss nation is any guide, it would seem difficult to make a more incorrect statement. Apart from the voluntary organisations just referred to, and the Cadet Corps, and the voluntary preparatory military training referred to earlier, it must be remembered that all the work performed by officers and non-commissioned officers may be called voluntary.

Para. 76 of the old law, and para. 10 of the new law, lay down the principle that a man must accept promotion, and the duties it carries with it. It is only in rare instances in the infantry that the law has to be relied on to induce men to go through the non-commissioned officers' courses. There is never any difficulty in getting them to accept the rank and duties afterwards. The officers require no persuasion at any time, and the number of officers serving is largely in excess of establishment. In a general sense, it is very much preferred not to make a man serve as officer or non-commissioned officer who does not wish to do so.

The number of officers and non-commissioned officers in the Swiss armed force is such that, in the proportion of the English population, it would represent more than 500,000 men, or as many as our Regulars, Militia, and Volunteers in England put together. It seems, therefore, that there is not much in the argument that compulsory military service would kill the volunteering spirit. On the contrary, my conviction is, that it would encourage it very much, as men having passed through their recruits' training, know their work and know that everything they are willing to do is taken real and full advantage of for the benefit of the country. The right sort of man has a liking for genuine soldiering, a liking which is, after all, inherent in human nature, and develops with encouragement. The sort of keenness that animates all ranks in the Swiss Army very much resembles what one sees in one of our crack volunteer regiments, or of a good company of Regular infantry going through its company training under a capable captain. Indeed, the whole training of the Swiss Army resembles the concentrated and invaluable instruction given in our service during the annual company trainings. Most officers will admit that 75 per cent. of the useful teaching—the real effective training—which our men get is given during the company trainings and in the musketry courses.

The Budget of the Swiss Army is naturally of the greatest interest. In each year's Estimates, under the heading "Military Department," appear the accounts relating to the Army. But these do not represent all the military expenditure, for under headings such as "Government Investments," "Department of the Interior," "Finance and Customs' Departments," etc., appear items which are strictly military. In order to know the true military expenditure it is necessary to place all these items together, after extracting them from the various headings under which they appear. Under the heading of "Receipts" appear a number of items, such as the

proceeds of the tax in lieu of performance of military service, of which half goes to the Cantons and half to the Federal Government. Also proceeds of sale of old weapons, etc. The tax in lieu of military service brought into the Federal and Cantonal Governments last year the sum of £166,000.

On the whole, the Estimates show a regular and steady rise, though this rise is only in proportion with the general rise of prosperity of the country. I have made careful extracts from the Estimates of 1907, which I believe cover all military expenditure, with the result that the receipts are shown as £984,553, and the expenditure as £2,366,885, leaving a balance of expenditure over receipts of £1,482,341, or nearly $1\frac{1}{2}$ millions sterling. If the population of Switzerland equalled that of England, the Army organised on the Swiss system would cost about $19\frac{1}{2}$ millions sterling, and this sum would also cover the auxiliary services of another 4,000,000, who would set the armed 4,000,000 free to appear in full strength in the field. The expenditure may be stated in another way. Each armed Swiss defence man represents an annual outlay of about £5 6s. The unarmed and armed human war material together represent an outlay of about £2 15s. per head per annum. It may be objected that the conditions in England and Switzerland are different. So they are, but largely to England's advantage in the matter of economy—our industrial resources are incomparably greater. We could pay officers and men more, possibly double as much as in Switzerland, and this would balance the economy in the production of *matériel*, food supply, horses, etc., so that the net expenditure might be in the same proportion after all.

You must remember that in England we should only have about 130,000 men annually available for a Militia Army, after the needs of the Navy, the Regular Army, and of the Mercantile Marine have been satisfied, and after allowing for emigration, and the necessary rejections on physical grounds.

The principle of universal obligation to serve should be equally applied to the men of the Mercantile Marine in relation to the Navy instead of the Army. A great reserve could thus be created for the *personnel* of the fleet.

All are agreed that the recruiting for the Navy cannot be encroached upon, but it is not clear that all recognise the equally imperative needs of the Regular Army, which alone can enable us to fulfil our Imperial obligations. Circumstances might arise which might conceivably require us to reinforce the garrison in India with 50,000 men, or more, to stay there some time. This must be a function of the Regular Army. Complications may also arise in other parts of the world requiring the immediate employment of a striking force of from 100,000 to 150,000 men. These must also be furnished by the Regular Army. The National Militia Army cannot replace the Regular Army. But it would immensely increase the effectiveness of the Regular Army, as it would of the fleet, by setting them both free to carry out in full strength the duties for which they exist.

Therefore, the 35,000 recruits annually required to keep the Regular Army up to strength must not be encroached upon. But with a recruit contingent of 130,000 men annually, giving them a three months' recruit course and eight annual trainings of a fortnight afterwards, we should have an Army a million strong, costing £6,000,000 a year. This is very little more than our Militia,

Yeomanry, and Volunteers cost, probably less, if all the expenses incurred on behalf of the Auxiliary Forces could be ascertained, while it would be infinitely more efficient as an Army.

People sometimes say we could not possibly want such an Army in England, but it must be remembered that an Army on this Militia footing is not a Standing Army. It is an Army which never appears except in fractions for training, and in full strength only to meet the enemy. Thousands of visitors to Switzerland every year never see a soldier, and apparently think a Swiss regiment must be as rare an object as a Swiss battle-ship. The large—and to the anti-militarist, shocking—figures of the strength of a National Militia Army, represent the Army *in posse*—what it would be if required to fight. You cannot, then, have too many. At all other times the Army *in esse* is only in existence during the few days of its training. In Switzerland at no time does the number of men under arms exceed one-fifth of the total strength, and this number is only reached during the most strenuous period of the autumn manœuvres. It is an Army which, in peace-time, never is an Army. It has no barracks to speak of, and gives little evidence of its existence except during trainings. On an enemy's threat, however, it at once becomes a mighty and complete Army—a host stamped from the ground, armed from head to foot, and ready for any eventuality.

I will state the effect on the country of universal service on the Swiss model in another way.

The whole Swiss Army represents in days of work during the year roughly, the output of 6,000 men of a permanent force. The 4,000,000 men, proportionate to a population of 40,000,000, would correspond to a Standing Army of about 82,000 men. This is only about one-third of the strength of our Regular Army, without taking any of the Auxiliary Forces into account at all. A Militia Army of a million men would, of course, correspond to a permanent force of about 20,000 men. This does not seem a figure sufficiently formidable to inspire even the most rabid anti-militarist with horror.

The total amount of energy diverted from trade or business is obviously very much less than is the case with a Standing Army of the usual continental type.

The question of the pay of the Swiss soldier may be touched upon. Nobody, of course, gets anything when not actually serving, and there are no pensions except to individuals (or the families of individuals), who may die or become invalided in or through military duty. The private of infantry receives 8d. a day when on duty—a cavalry trooper 10d. a day. The highest officers in the Army get up to as much as £2 a day when on duty, and certain travelling and horse allowances. The only individuals who receive a fixed yearly rate of pay are the heads of departments and military establishments, and their staffs; also officers and non-commissioned officers of the instruction *personnel*. The pay of the Chief of the Military Department is £480 per annum. Chief instructors of arms, that is to say of the infantry, cavalry, artillery, etc., get from £220 to £240 per annum, and about £48 horse allowance. When on duty officers and men are entitled to rations daily or 10d. in lieu.

The administration of the Army is a little difficult to understand at first, owing to the double sovereignty of the Confederation and the Cantons. It does, in effect, lead to some friction and loss of efficiency, but the Cantons are so jealous of their rights and

privileges that it is a slow business overcoming this obstacle. But still, education, and a liberal spirit are at work calming susceptibilities, and showing the way in which the best efficiency can be attained for the benefit of all. Attempts have been made from time to time to curtail the influence of the Cantons, and increase that of the Federal Authorities. Progress has been made, and will, in future, be greater. The ideal sought is just that degree of decentralisation which admits of the most effective administration, while, at the same time, leaving the Federal authorities absolute powers of executive and direction.

All the Cantons have State Councils and Councillors. In all general matters of administration they are independent. They have machinery of their own for the execution of the Federal laws. This system extends to everything. There are, therefore, in Switzerland, 25 different forms for the application of laws, and 25 penal codes—the penal law being still within the competence of the Cantons, while the civil code is almost entirely Federal now. It is in process of change, and will soon be quite Federal.

The State Councils of the Cantons have each, in due form, a Military Department or little War Office, under a military director. Within the competence of the military directory come the following functions:—

1. The providing of the troops for the infantry, 32 rifle companies, the Dragoon squadrons of cavalry, 48 batteries of field artillery, and 10 companies of position artillery, also the appointment of officers of the Cantonal units up to the rank of major, though no officer can be appointed without the certificates of qualification issued by the Federal authorities.

2. The providing of the whole equipment for the men, except arms, for which repayment in money is made by the Federal Government, which also supplies all arms and corps *matériel* direct.

3. The Cantons are responsible for storage and maintenance of the whole of the arms, ammunition, clothing, and equipment of their troops.

4. The Cantons have to supply the eight territorial divisions of the Army, partly at the expense of the Confederation, with sufficient divisional artillery and infantry ranges, field firing areas, and also with barracks, which they must maintain. For the expenditure on these items the Government now reimburses the Cantons to the extent of 5 per cent. annually on the capital sunk in buildings, and 4 per cent. on land. Profits from lands belong to the Cantons, which in this way recover some of the outlay. The right of expropriation exists for land required solely for military or public purposes; speculation is guarded against by the rule that land no longer required for military purposes must be at once returned to its original owners.

5. The superintendence of all movements of men of the Cantonal units within the Cantons is Cantonal business. This function is the one which occasions the heaviest amount of work to the Cantonal authorities. Further, the collection of the tax in lieu of personal service is Cantonal business; half of the tax is retained by the Canton, the remainder being remitted to the Federal Government.

6. The granting of leave of absence from duty in the Cantonal units is a Cantonal function. Men are sometimes excused from training when the training takes place at a time which might cause a man

very serious loss in his business, or they may be excused for sickness or on account of sickness or death in the family. For those thus excused, "Nachdienstkursen" or "casuals" courses are arranged. These "casuals" are formed into separate provisional battalions, or other units, in each division, and carry out complete repetition courses of their own. In case of officers the Chief of the Arm at Headquarters is consulted. Exceptional circumstances are taken into account when granting leave, and the decision rests with the military director. This has given rise to some dissatisfaction, and it is felt that the officers commanding the troops should have more to say in the matter.

The superintendence of the compulsory shooting courses is Federal business.

Practically, all other military business is Federal. The recruiting is carried out under Federal district recruiting officers, with the assistance of the district commandants. Several districts are united under each divisional commandant. The district commandants are appointed by the Cantons; 15 to 20 communes, according to size, under section-chiefs, are united into districts. All expenses on account of Federal functions are paid by the Federal Government to the Cantons.

The examination of recruits, their distribution to the various arms, their instruction, the administration of the Federal troops and special troops, armament, workshops, the supply of corps *matériel*, the appointment of the higher staffs, and of all officers above the rank of major, is all Federal business. Company non-commissioned officers are appointed by their company commanders; battalion non-commissioned officers by the majors. For the Army Staffs and General Staff, non-commissioned officers are appointed by Federal authorities.

The Staff of the military directors of the Cantons consists of a secretary, the superintendents of arsenals and stores, with a staff of workmen and a body of clerks.

The remainder of the field artillery, and of the position artillery companies, the guides cavalry squadrons, the Maxim companies, the rifle battalions, the engineers, the mountain artillery, the balloon company, the medical supply and administrative troops, are all Federal. The new law proposes to make the whole of the field artillery Federal at once.

The chief arguments now used against the centralisation of authority are, that it would be making the army a Standing Army, that the sovereignty of the Cantons must not be interfered with, and that the expense would be increased. The first and last arguments have no foundation at all. The matter of the sovereignty of the Cantons is really the stumbling-block, though it is a sentimental one. The dual sovereignty and administration is the reason why, as at the Beundenfeld at Bern, you will see stores and establishments, of both the Canton and the Federal Government, side by side. On the other hand the Cantonal system facilitates decentralisation, and leads to a good deal of healthy rivalry and *esprit de corps*. The men of Bern and of Fribourg have no great admiration for each other, but they strain every nerve to outdo each other in military excellence.

Although the pay of the Swiss soldier is small, the State makes provision for the families of such men as have met with serious mishap in, or as a result of, their services, and are consequently prevented from supporting their families altogether or in part. This

relief is only given, however, to the poor, who really require it. A certain amount of provision is also made by the Communes for the indigent families of men called to the Colours, and which would be left otherwise in distress. It is proposed, by the new law, to extend the scope of this relief a good deal, so that the really poor may not be sufferers, owing to the breadwinner of the family being called away in his country's service.

The extent to which trade and employment are interfered with by the periodical calls for trainings, seems to be really slight. In ordinary trades and business, or professional occupations, the disturbance is very slight. The actual periods of duty are known to all beforehand, and the disappearance of the individual from his work for a time is perfectly a matter of course. The doctor or solicitor puts a notice into the paper to say that he will be absent at man-œuvres. The hotel porter gets so much leave from his employer. The individual who suffers most is the farmer, who may have a crop to get in just at the moment when his farm hands are called away to the Colours. I met near Bern the other day a farmer who was looking at his ripening crops. Talking to him about the man-œuvres, he said that all his five sons had been called out at the same time. I asked him what they were employed at, and he said they all worked on his farm. On my saying that he would have some difficulty with his crops, he said: "Yes, but we'll try to get them in first, and what we can't get in then we'll get in after." He was quite philosophical about the matter, and showed no sign of considering it a hardship that all his sons had to leave at a critical moment. The staunchest supporters of the military system are the farming class—the bulk of, and the best of, the population. They have the most to lose by it, but they recognise its value, and accept the inconvenience for the sake of what they know to be the general good. The loudest outcry against the system is made by just those classes who lose nothing and are not even inconvenienced by their short periodical spells of duties, and who are precisely the people who benefit most by being subjected to discipline and wholesome physical and mental training. It is this class which supplies the few anti-militarists who spread fantastic tales about the Army being used to oppress labour, of shooting down unarmed crowds, of bayonet charges against women and children. These are all shameless inventions, for no shot has ever been fired, no bayonet charge has ever been delivered, and nobody has ever been killed by the troops. A few slight injuries only have been inflicted. Soldiers have only been called out to suppress disorder and ensure respect for the laws of the land.

It is the few anti-militarists, too, who lead the clamour against the employment of the military in case of riots. Owing to the military system, every Swiss man becomes, in a sense, the guardian of the good order of the country. This sense of responsibility of the citizen is the reason why Switzerland requires so small a body of police. In a town like Lucerne, for instance, there are only 40 policemen, or 80 when the tourists come. If the National Army were not there to uphold the law of the land, the police force would have to be largely increased. What the people in this country think of riots, disorders, and their suppression may be inferred from the facts of the strike riot at Zürich in 1906. The authorities hesitated so long in applying force to quell the disturbances

that the inhabitants of the communes, which were the scene of the troubles, lost all patience, and threatened that unless the Government would call out the troops and restore quiet, they themselves would turn out with their bayonets and drive the rioters away. This attitude of the people was one of the causes which finally induced the authorities to turn out the troops for the unpleasant duty of suppressing rioting. When the troops were turned out, and this was done with great rapidity when finally decided upon, the trouble ceased as if by magic, without a shot being fired or a bayonet being used. The truth, however, is not always a safeguard against the malicious statement of the anti-militarist fanatics, and calculating professional demagogues, who endeavour to represent the troops as being employed against labour (a preposterous statement, since labour is the source of the country's prosperity), instead of against disorder, as was really the case.

The disturbance to trade, to the business of the great industrial establishments, and to the earnings of workmen, may be estimated by the figures placed at your disposal by Messrs. Sulzer Brothers, of Wintherthur—the chiefs of one of the greatest industrial concerns in the country. Of their 3,454 workmen of Swiss nationality, 28.4 per cent. are liable for military duty—that is, to service in the Auszug, men between 20 and 32, and in the Landwehr, men between 32 and 44 years of age. There are, of course, many men in the works who have not been accepted for military duty, or who are beyond the liability age. In 1906, 16.6 per cent. of the workmen performed military duty, but only about 2½ per cent. went through the longer recruits' course. The loss to the firm was altogether 1.44 per cent. of the total working days in the year.

Employers of labour in Switzerland consider that the small loss in working time is more than compensated for by the increased efficiency of the men.

I now come to a portion of my remarks which, I confess, cause me a little difficulty. It is the critical part. You may think that I have been so unsparing in my praise of all things connected with the Swiss military system that I have left no room for criticism. You will say that in all organisations there must be some parts less perfect than others. There *are* some points in which the weakness of a Militia system is evident. I am the more emboldened to speak out on this subject, as the best Swiss officers know the weak points as well as any outsider can, and have criticised them quite unhesitatingly. It is part of the splendid spirit of this fine Army that they do not attempt to gloss over their failings, but drag them into the light and continually work for improvement.

One weak point of the Militia system is the misfortune that political "pull" sometimes enables men of less capacity to oust others of greater capacity from important appointments and commands.

In Switzerland there is very little of this, for public life is very sound and pure. Besides, officers in prominent positions are so watched and criticised by an intelligent and appreciative public, that men of a dangerous degree of incapacity cannot long maintain their positions, any more than it would be easy for a third-rate cricketer to hide his incapacity if made to play in an all-England eleven. The danger exists though, of men, not quite the best, being appointed to positions they should not occupy, and this danger the Swiss recognise themselves.

I think it is usually admitted that the weakest point in their Militia system is the difficulty of procuring officers and non-commissioned officers having sufficient practical and theoretical knowledge. Nothing whatever can be said in disparagement of these cadres from the point of view of ordinary education or keenness and devotion to duty. Their keenness is really quite admirable, and what they do learn in the short time they have to study the many-sided and difficult business of an officer's duty, is simply astonishing. But good-will and good material are not sufficient alone to turn out the highly qualified officer. He must also have years of experience, of study of the theory and practice of the profession, and, especially, he requires much practice in the handling of men. Otherwise, he cannot be so much superior in professional knowledge to his men as to have that ascendancy over them which is indispensable if he is to get the best value out of them. There are many officers in the Swiss Army who would be an ornament to any Army—men who are brave soldiers and leaders, and who have also in their own time, through sheer passion for soldiering, studied and learnt as much as officers of their rank in any standing army. Every officer must also have been through the whole mill. No man can become an officer without satisfactorily performing his duty as a private, and further satisfying the rigid demands of the higher standard of an officer's qualifications. The fact is, that the profession of an officer requires more time and work than a man engaged in the ordinary pursuits of civil life can give to it. We are here confronted by the almost unsurmountable difficulty presented by the Militia system. The proportion of professional officers is a difficult matter to decide—it is important to train the Militia officer to command, therefore the commands cannot all be held by professional officers. But the purely instructional duty has a narrowing effect—rather tending to routine habits of mind. I certainly think that we should require the proportion of professional, permanent, officers to be higher than it is at present in the Swiss Army. The Achilles heel of a Militia Army lies in the difficulty of providing officers and non-commissioned officers with sufficient practical professional knowledge and experience in leadership and command. The small body of instructors—permanent officers—in the Swiss Army renders priceless services, and one has only to observe the handling of a detachment by one of these to recognise the touch of the expert. The organisation of the Swiss Army has been thought out by highly-competent experts, and the training of the troops is almost entirely due to the small body of professionals. Under the easy conditions of peace manœuvres, the shortcomings of the subordinate leaders are noticeable. Under the infinitely more trying conditions of war, the weakness might have serious consequences. What the most competent critics in Switzerland think may be gathered from the frequent reports on the subject. We should be better situated in this respect in England. Prominent Swiss officers have often said to me: "What an immense advantage England would always have in her permanent Army—if she organises an Army like ours for home defence. She can always have the services of a large number of highly-trained staff and regimental officers. The Regular Army would supply just the element we lack."

Another point of less excellence in the Swiss Army is the artillery. The material is good—the batteries are well turned out and well organised, and the men are excellent, so far as hard work and good-

will are concerned. The horsing of the batteries, considering that it is all by requisition, on payment of 5s. 10d. per day per horse, is very good, too. But the employment of the arm is a little behind the times. I think, on the whole, as artillery, it is a little less efficient than the other arms of the Swiss Army are, each of their kind. The causes for this may lie in the nature of the arm, and the difficulty of training in a Militia Army. You can teach an infantryman much of his work in private life, and at odd times—to shoot, to march, to drill even, to look after his uniform, his weapons and himself, and so on. You can teach a cavalryman to ride and shoot, and a man with the natural aptitudes and goodwill becomes a creditable trooper—as we see here—in a very short time. A civil engineer becomes a good military engineer, almost with the change of his clothing. But in private life you cannot drag field guns about the streets, practise with shrapnel in the back garden, gallop about the country with teams of horses and guns, and practise all the complicated and technical business of ranging, indirect fire, the use of goniometric sights, massed and isolated action of batteries, slow, rapid, and rafale firing, etc., to say nothing about horsemanship, riding, driving, etc. Without great skill in these matters the gunner nowadays is hopelessly at a disadvantage. It seems very difficult to train artillery sufficiently in the short space of time the Swiss Army has for training. If the Swiss cannot, I think we may take it that nobody can. Yet the ordinary drill of the Swiss artillery is good. They get plenty of practice, too, for in each repetition course, each gun fires some 180 rounds of shell.

Since I wrote the above I have been discussing the point with one of the most eminent officers of the Swiss Army. He told me that the difficulty of the artillery was not due to an inherent defect of the Militia system, so much as to a traditional formalism handed down in the artillery from former days.

If the Swiss artillery as artillery can be made as efficient as the Swiss cavalry is as cavalry, we may say that the Militia system will answer for artillery also. There are many capable men working hard to raise the general efficiency of the artillery. As this persevering people generally succeed in removing what it considers to be defects, there is no doubt a hopeful future for the artillery.

These are, gentlemen, in my humble opinion, the important points in which the Swiss Army is less excellent than elsewhere.

You have, no doubt, heard a good deal about the new law for the reorganisation of the Army, which is to be voted upon on Referendum by the people of Switzerland on 3rd November next. I will give you a brief *résumé* of its chief features. They are:—

1. Full provision for the family of a "Defence-man," which is placed in need through the man being called to duty. This provision cannot ever be reclaimed by the State, and is, therefore, not a loan or a debt of the soldier's. This will remove almost the only cause of any hardship to individuals through the military service. Its need has been increasingly felt of recent years, and its introduction is a great satisfaction.

2. The furnishing of a proportion of the troops with mountain equipment. It may seem odd to you, that though Switzerland is par excellence the mountain country of Europe, a very large proportion of the Army is not equipped as mountain troops. I confess that

it is inexplicable to me. Troops equipped for work in the mountains are always at home in the plains, but the converse does not hold good. The French, Italians, and Austrians, too, have now large bodies of troops specially equipped and trained for work in the mountains. The Swiss are at last about to make good what many of their best officers consider a serious defect.

3. A much more extensive support by Government of the Gymnastic Associations, which will now officially be charged with the physical preparation of the youth of Switzerland for their duty as citizen-soldiers. This is another good step forward in the matter of the physical education of the people.

4. Increase of the period of the recruits' courses, from 45 to 65 days for the infantry, from 57 to 75 days for the artillery, and from 82 to 90 days for the cavalry. In this we see the recognition of the truth that 45 days is no longer sufficient for the training of the infantry recruit. Modern fighting makes such large demands on the individual intelligence and skill of the soldier in the ranks, that it is absolutely indispensable that he should receive a higher degree of individual training.

5. The repetition courses for the infantry and engineers in future to be annual ones of 11 days each, instead of biennial ones of 18 days. The artillery and fortress troops will have annual trainings of 15 days. It is felt that in this way the men will be kept more up to the mark, and the excellent results achieved in the cavalry, owing in part to the system obtaining in that arm, give good grounds for the opinion that similar benefits will be derived by the other arms. The number of repetition courses, too, will be seven, and, falling in the earlier years of a man's service, will thus cause even less disturbance to his civil occupation than now.

6. The period of training for junior officers, especially of the infantry, is to be increased to 220 days instead of 200. The great necessity for improving the training of the officers is recognised in this measure. Also for officers above the rank of captain the periods of training for the General Staff are to be increased.

7. A certain increase of the executive functions of the Central Authority, and a corresponding reduction of the functions of the Cantons, is proposed. This is necessary for the increase of efficiency in various branches of the service. It is also proposed to make the whole of the field artillery Federal troops, instead of being, as now, 24 batteries Federal and 48 batteries Cantonal.

8. Increase of the direct influence of the higher leaders on the recruiting, training, and command of the troops serving under them. This is an excellent measure, designed to increase the efficiency of the commanders by increasing their responsibility.

The additional work demanded of the men is only a total of 10 days, spread over all their Auszug service, and against this 7 days formerly devoted to inspection of arms during the years the men are not required to turn out can be deducted.

The additional charge on the estimates will be only about £200,000 a year. This can easily be covered by the surplus of the revenue.

It will thus be seen that the proposed law for the reorganisation for the Army contains nothing but very moderate and thoroughly well-thought-out measures for increasing the efficiency of the Army in just those points in which it is known to be lacking. This law will be submitted to the vote of the people on 3rd November next, and

it is hoped that improvements so desirable, decided on practically by the unanimity of both the Chambers, will also meet with the approbation of the sensible and patriotic portion of the people. When the signatures were obtained for claims for the proposed law to be submitted to the "Referendum," it was found that some 88,000 votes had been registered for the application of the Referendum. It remains to be seen if this number will be largely increased in favour of rejecting the proposed law. The total number of voters in Switzerland is 809,000.

The troops that you will see at this year's manœuvres are the 1st Army-Corps and a manœuvre division, formed chiefly from troops of the 2nd Corps. This latter has almost the strength of an Army-Corps, as it contains 19 battalions of infantry. As an experiment, it has been formed as a Grand Division on the Japanese model with three brigades. This is interesting to us, as it resembles the big division adopted in our Army. The infantry of the 1st Army Corps consists of French-speaking troops. In the Manœuvre Division the infantry is chiefly from the German-speaking Cantons.

You will see many things of great interest in these manœuvres. Perhaps you will allow me to direct your attention to the accurate and quiet manner in which you will see a whole Army Corps with a front of several miles directed on to the line which it will be required to attack. There may be changes of direction and changes of plans—perhaps taking place at night—but in every case the general accuracy of movement will be maintained without hurry or fuss, and conclusive proof will thus be given of the efficiency of the commands and staffs. You should particularly notice the admirable march discipline of all bodies of troops and trains. Everything marches quietly, steadily, well closed up. You will see infantry marching, perhaps after doing 25 miles with little or no sleep the night before, a tiring fight during the day, and carrying 66 lbs. weight on their backs, but still as steady and well closed up on the march, and as willing if called upon for a fresh duty, to entrench or whatever it may be, as if they had just turned out. Real good infantry it is. Pay special attention to their fire discipline, for you will see none better in any army in the world. Watch the cavalry—smart, intelligent, quick, well mounted, equally good in isolated as in mass action—and you may well marvel how such can be created in 80 days to begin with, and less than a fortnight once a year after. Look at the artillery—good and complete at all points, in movement and drill, and think what good commanders could do with such material. Look carefully at the train columns in the road—the discipline there, difficult as it sometimes is to maintain in such columns, is perfect. Remember that all the troops out, about 52,000 men, are fed, as in war, by the supply services—not by local requisition. Hence, the conditions closely resemble war in this respect. There is greater freedom for the commanders as to manœuvres, as they are not tied to certain billeting areas. That the troops have not more often to wait for their supplies, speaks volumes for the efficiency of the Commissariat. Note, too, the rapidity and completeness with which each unit shakes down into its cantonment area when halted. This is due to the fact that the communal authorities have permanent lists of the available accommodation in barns, stables, etc. The troops are not billeted into houses at all. The allotting of the troops to their so-called cantonments can thus be carried out with extreme rapidity. The only

housing supplied for the men are reading rooms, where the men can write letters, read the papers, and so on. Usually some village school-room or other public room is used for this purpose.

Pay close attention to the big review on the 12th September. You will see that there is nothing whatever prepared for show in the Swiss Army—uniforms, etc., are all of the simplest descriptions; but the impression made by the whole is, perhaps, all the more deep. Remember that the fine review you will see, in which the troops will be displayed in first-rate style, is not a thing which has been rehearsed. None of the units you will see have marched past before, except on a similar occasion two years ago. Under these conditions, so good a parade could only be possible through first-rate staff work, excellent organisation, and the best efforts of everyone concerned. If the review were better or more spectacular, it would be proof that too much time had been wasted on an unimportant exercise. That the result is as good as you will see it to be is simply astonishing, and really must be seen to be believed.

The points of chief excellence in the Swiss Army, after the spirit which animates it, and which must always be placed first, is the perfection of the organisation in all its details, down to the smallest of the subsidiary services. It really *is* an Army, complete and ready. Remember its readiness for instant mobilisation, and compare it with what you have known our own to have been hitherto in these respects. Remember that this truly great little people has created for itself this excellent Army, which, with a population as large as ours, would correspond to 4,000,000 men, with 4,000 field guns and 70,000 cavalry, costing 19½ millions annually, entirely of itself and by itself.

In conclusion, I would beg you, above all things, in studying what will be shown you of the Swiss Army, to direct your attention mainly to the splendid spirit of the people and of the troops under arms—remember that in this country Army and people are one and the same thing. Remember that it is the people that creates the army, and that if in England we are ever to have an army worthy of our place in the world, and equal to modern requirements, that that army must be created by the people too.

The men in England who can direct the people's attention to this vitally important question will have rendered their country immense and lasting service. It is really the most important question of our time. It cannot be doubted that a people, with the common-sense of our people and the patriotism, which we believe underlies their apparent indifference, will appreciate the points when it has studied the matter, or that it will insist that the best measures be adopted to ensure the security of our Empire, the well-being of our race, and the peace of the world. Once the people of England have become familiar with a system like the present Swiss Militia system, have learnt that the devil is not so black as he is painted—that the expressions "militarism" and "conscription" are phrases without meaning when applied to a national service system like the Swiss, and that such a system is of the greatest benefit to a people, and has no drawbacks, then all the great body of hard-working, sensible, patriotic Englishmen will surely insist that we have it. But they must first thoroughly understand what it all means. And it must be your business, who will have seen things for yourselves, and particularly of the gentlemen representing the Labour party, of which few have

the opportunity of travelling abroad for study, to inform our people at home what the truth of the matter really is.

You are, no doubt, all familiar with Mr. Haldane's memoranda on the new Territorial Army. These memoranda take the country fully into the Minister's confidence as to the principles underlying the new organisation. You can in this country see for yourself a system which has a very great similarity in point of organisation with the one now introduced in England, and which is an immense step forward on the road to efficiency of the British Army. But, still, there is one great element lacking—one essential difference between the Swiss system and our own—the principle of the equal obligation resting on every man to serve his own country. It is hoped in England that the desired results may be attained without the obligation to serve. You will be able to form an opinion to a certain extent after your visit to Switzerland, whether it is possible to do so or not. We believe that the people of England will be satisfied with nothing less than the best. You will be able to tell them how the best can be obtained. It requires courage to tell a people something which is destructive of its most cherished illusions, but, after all, our people do like a man who speaks out, regardless of consequences, and mindful only of his country's good and the truth. It is little use for the military authorities in England to speak, there is always a suspicion of motive. It is now essentially a matter for the people, and it is the business of those most nearly in touch with the people to inform the people. It is not a party or class matter—it is a national one, and affects us all, rich and poor, high and low, simply by virtue of our all being Britons.

Major-General Sir THOMAS FRASER, K.C.B., C.M.G.—I have heard several lectures on the Swiss Military Militia system, and have read a great deal about it, and with the experience I have thus gained, as well as what I have seen, I congratulate Colonel Delmé-Radcliffe on the admirable lecture he has given us to-day. He is a trained soldier brought up in one of the best regimental schools of the Regular Army. He knows exactly what to look at, and what to tell us, and he has been most successful in bringing this subject before us. I am one of those who believe that no nation in these days can ever exist, permanently, unless its men are under the obligation of military service imposed upon everyone alike; and not only that, but under the obligation of receiving such a training and organisation as will fit them to face, at a moment's notice, those enemies who are well known beforehand, and whose training is beyond measure superior to that of the Swiss, of which we have heard to-day. In the June number of the *Fortnightly Review* of this year, I have given what I believe to be the views of Continental authorities on the Swiss Militia. I expected the passing of this Swiss Bill, and accordingly made a few notes on the results which would follow. I will not trouble you with the cavalry and artillery, but the infantry will have to do 65 working days' training in the first year and eight working days' training for each of the remaining seven years. There is a point that you must not lose sight of; when we say that the eight years' service men will have had a certain amount of training, that is not the training of those who are going into war at any particular time. The mean training of an eight years' force is *four years*. That is evident, because some may have practically none and others may have eight years. In that period of four years the Swiss Infantry, under the new Bill, which was passed by a majority of 62,000 votes out of nearly 800,000 voters in the country, get about thirteen weeks of training at the

time of war, whilst the reservists at the end of eight years' service will have done some eighteen weeks' training. But you must remember that Switzerland is, I think I am right in saying, a State whose autonomy is guaranteed by eight great Powers; therefore Switzerland is not at all in the position of this country. She is safe in the security of her territory and of her political existence, whatever happens, under the guarantee of these eight Powers. She has only to arm on the principle of limited liability, and what she has to look out for, apparently, is to have arms in the hands of the whole population, so that if a foreign people are tempted to intrude upon her territory, there will be armed men available against the violence of those foreign soldiers, for the protection of the people, their families, and their property. That I think is the object of her army; but that is not the object we have in view. We shall have to fight if we have to fight at all, at a moment's notice. We shall be lucky if we get twenty-four hours' notice under the Hague Convention; but war is commenced by telegraph and declared by post, and the Post-Office sometimes goes wrong. Therefore, at the best we may get twenty-four hours' notice; at the worst we may get none. For that reason our position in England is very different from that of Switzerland. A very curious thing happened a few days ago, as I daresay you noticed in the papers. In the Treaty of 1855, we and France guaranteed the integrity of the then United Kingdom of Norway and Sweden, against Russia only. That Treaty has since been done away with, and four Powers have now guaranteed the autonomy of Norway. Sweden was invited to be guaranteed, but she declined, and forthwith she raised the amount of first training for her army to one year. If thirteen weeks are sufficient for Switzerland, why should Sweden require one year? The reason is that the set of conditions are totally different; she also can count on the jealousies of Great Powers, but she has to fight for herself without the guarantee that the Powers have given to Norway. I think, therefore, we must look at our position at home under the new Bill, and see how we stand as compared, first with Switzerland, then with Sweden, and then with the great Powers of Europe. Mr. Haldane has taken immense pains—greatly to his credit—to try and find out what is going to happen, by going all over the country, and the other day he expressed a very interesting opinion as to what he thought would be the amount of training that our territorial force is likely to get. He said, "We calculate that we may hope . . . to get 80 per cent. of the territorial army into camp." That means that 60,000 men out of the 300,000 men will not have had any field training at all before war, and that the territorial army is consequently reduced to 240,000 men. Then Mr. Haldane says that a large nucleus of men will come into the territorial camps and stay there fifteen days, but he evidently recognises that there will be a very much larger proportion who can only stay a week. That I believe to be absolutely the case throughout the country, so far as I have heard. Then there are the men to whom he referred, as requiring only 15 days every second year; and others as not being able to give a week; and for the latter he proposes week-end training. I think we may take it, with this territorial army of 240,000 men, we cannot calculate on more than an average of a week a year of field training. As the force here is a four-year force, the mean period of service will be two years; in two years, therefore, we shall have in the territorial army a mean training of two weeks, in addition to some 50 hours in the drill halls, etc. That will be all the training these men will have before the occurrence of war. I know it is intended that when war comes they shall have six months' training; but I do not think that is a hope we can take into consideration, at all, in the defence of the country. Therefore, we shall have in this country before war

comes only a fortnight's training, while the Swiss will have thirteen weeks; the Swedes will have a year at least, and the great military Powers will have at least two years. What possible grounds have we for supposing that fourteen days' training will fit us for war against people who have had two years' training? Or that even if the Swiss system were applied with a thirteen weeks', or under the proposition Colonel Delmé-Radcliffe has made, eighteen weeks' training, that that would fit our people to face men who have been trained for two years in a most exhaustive way? The arrangements of the Swiss Army may fit the Swiss people very well indeed under the circumstances of their requirements; but neither thirteen nor eighteen weeks' training will in any way fit the men of this country to face the best armies that the world has ever seen. It is not possible; it is not common sense. Therefore, while I admire immensely what Switzerland has done, under a system of conscription, including the way in which education is given to the youth of the country, in patriotism, in musketry, in drill, and gymnastics, I submit that people who suppose it does not matter how much or little a force is trained, are not talking with a knowledge of what war is. In the opinion of the most experienced soldiers in the country, you cannot teach discipline in the short time in which, it seems, we are supposed to be able to teach it in this country. Discipline is a slow-growing plant, and it is only acquired after long training. Therefore, I think we cannot dare to say that thirteen weeks or eighteen weeks would fit our territorial army for opposing any great European Powers at a moment's notice. There is, among some, a great desire in this country to get rid of a regular army, as the force behind law and order which stands in the way of certain aims, and we should not give it arguments for weakening the efficiency of our regular army. If we could persuade the country that thirteen weeks' (or eighteen weeks') training will enable the territorial forces to beat our foreign enemies, whoever they may be, from across the narrow seas, then it will follow that thirteen weeks' training and a militia basis of training is quite good enough for the regular army, because it will have no more powerful enemies to face throughout the world, either at home or abroad, than the territorial forces will have to face when war happens. I therefore think the regular army, which is, so far, our only reliable military asset, would be in danger if we were to let the public suppose that we honestly believed that thirteen weeks is a sufficient training for the territorial forces to face enemies composed of the regular armies of other nations in Europe. There is only one other thing I desire to say: If the Swiss army had ever been tried, if it had ever fought under its new formation and conditions in war, then we should know whether it was reliable or not; but I submit that neither history nor experience has ever shown that an army with a training of thirteen weeks is fit to face armies with a far higher type of training, lasting several years.

Colonel J. A. FERGUSSON (late Rifle Brigade):—We have listened to a very valuable, interesting and instructive lecture. I think Colonel Delmé-Radcliffe has done a great patriotic service in giving us this lecture to-day, because it is singularly well timed. My excuse for intervening in the discussion is that for ten years I have never lost an opportunity of urging the absolute necessity, for our national safety, of adopting some system like that of the Swiss. May I say also that my late brother, Sir James Fergusson, who served in the Crimea and had a very varied career as a Statesman, held that view most strongly to the time of his death. Does the country realise that, even if Mr. Haldane's scheme succeeds—and all good citizens and patriotic Britons hope it will succeed—we could not

mobilise more than 300,000 men, and that they would largely consist, as has been pointed out, of untrained levies; whereas Germany could mobilise in a week three million highly-trained soldiers. We are not an island Power: we are a great world-wide Empire. We must think of something beyond the defence of our own shores. Something like the Swiss system I maintain to be absolutely necessary. A hundred years ago Mr. Pitt, as you all know, proposed something very like what we advocate to-day, and what Lord Roberts has done so much to impress upon the country. He, if you remember in his Act (it was an Act for many years), laid down that every able-bodied citizen between the ages of eighteen and thirty must put in four Trainings in the militia. He could choose his own time. Of course, that amount of training may not be adequate, but still, it shows that a hundred years ago Mr. Pitt was more far-seeing than our Statesmen of to-day. Is it too much to hope that the King's Ministers will rise to the height of their great obligations? I do not speak of one Government or of the other. Let them not play the part of Cleons pandering to the ignorant prejudices of the multitude. The details of the system are unimportant; it is the principle that is important—the principle that every man not incapacitated physically or mentally, is bound, if he be a citizen, to qualify himself to take his share in the defence of the country. That is the principle. If that principle were recognised and adopted, the manhood of the country would gain enormously. We hear much of the deterioration of the race, and a man must be blind indeed who does not see that the race is deteriorating. If some such system as this was adopted we should have not militarism, but peace; peace with honour, and immunity from attack.

The CHAIRMAN (Field-Marshal Earl Roberts):—Colonel Delmé-Radcliffe has given us a most interesting, and, I think I may add, on behalf of all present, a most instructive lecture. My only regret is that so few people have been able to hear him. I trust, however, that his lecture will be very fully reported, and that all he has told us about the Swiss army will be very generally read in this country. As Colonel Delmé-Radcliffe has explained, Switzerland is essentially a "Nation in Arms." Every man considers it not only a sacred duty to render himself an efficient soldier should his services ever be needed for the defence of his country, but a great privilege to belong to the citizen army. In fact, in Switzerland the army is part of the national life. Every able-bodied man either belongs, or has belonged, to it, while those who are physically unfitted to bear arms, or unable even to take their place in the non-combatant branches, have, as the lecturer has informed us, to pay in proportion to their means towards the upkeep of the army. The result of all this is that instead of the army being looked upon as something with which they have nothing to do, as I deeply regret to think is so generally the case in this country, it is regarded by the Swiss as their most valuable asset, not only as a security against invasion, but as the best means of promoting the commercial, industrial, and educational prosperity of their beloved country. The Swiss have long since realised that the habits of discipline which military training inculcates, have made their people better workers, better behaved, and better citizens in every respect, and they know from bitter experience that, without an efficient army, they would be at the mercy of their more powerful neighbours whenever it suited them to cross the border. They remember what their forefathers told them of the terrible time they went through when their country was invaded in 1792, how the effects of that time were felt during many subsequent years, and the number of valuable lives that were lost from

neglecting to take the most ordinary precautions; and they are determined, as far as it is in their power to prevent it, that such a calamity shall never occur again. It is impossible for me to say how earnestly I wish that our fellow countrymen would take warning by, and follow the example of, the Swiss. But, as a consequence of trouble never having been brought near their homes, they know nothing of the horrors of war. For many hundreds of years their battles have been fought on foreign soil, and mainly by the aid of allies and mercenary troops, and they refuse to believe that these islands can ever be successfully invaded. They flatter themselves that the Navy can do everything that is needed—defend these shores, destroy the enemies' fleets, and protect their commerce. Our Navy may most assuredly be depended upon to do all that a navy can do, but, unless I am very much mistaken, the sailors upon whose skill, courage and intelligence the successful carrying out of these all-important duties would depend, would be the first to tell us that to enable them to destroy the enemies' fleets and protect our commerce, it is essential that their ships should not be tied to these coasts. We must always remember that however strong, however powerful our Navy may be, circumstances may arise—over which the sailors may have no control—to prevent our fleets being on the spot at the critical moment. In order, therefore, to render these islands absolutely safe, we must have, in addition to the Navy, a sufficient, efficient, and properly organised land force. I am glad to think that the framework of such a force is now being formed by the Secretary of State for War. The right honourable gentleman's scheme is clearly on the right lines, so far as the County Associations are concerned; for whether a citizen army is established on a voluntary or a compulsory system, it must be based on a territorial organisation. But what we members of the National Service League cannot believe is that the army we require can ever be created unless all classes, high and low, rich and poor, men and women, take a practical interest in it, and feel that it belongs to them and that they belong to it in some form or other. It is this feeling, this true patriotic feeling, which has made the Swiss Army what it is to-day, and what Colonel Delmé-Radcliffe has described to us, a national army in every sense of the word, in which every man considers it the greatest honour to serve, while all those who neglect this duty are looked down upon by the Swiss women as unworthy of their country. You will, I am sure, agree with me that we are greatly obliged to Colonel Delmé-Radcliffe for his admirable lecture. His account of the Swiss Army is most attractive, and I trust that in time our citizen army will be similarly organised—so far as it is possible to be under the different conditions of our life—and with regard to the fact that, in addition to a citizen army, we are obliged to maintain a regular army for oversea service. I am sure, whether the vote of thanks is proposed by one who does not believe that a voluntary system will produce an efficient or sufficient army, or is seconded by one who thinks that a voluntary system will give us the best army we can possibly have, you will all agree with me in returning your thanks to Colonel Delmé-Radcliffe for his most admirable lecture.

Lieut.-Colonel J. E. B. SEELY, D.S.O., M.P.:—With your permission, and at your suggestion, my lord, I should like to second the vote of thanks to Colonel Delmé-Radcliffe for his paper. It were a dull meeting where everybody was of one mind, but we are all of one mind in thanking Colonel Delmé-Radcliffe for his lecture. I should think I am almost the only man in this room who wholly differs from the view that the glory of the Swiss system is compulsion. I admire the Swiss system, but I believe

that if you could get the same result without compulsion it were far better. And for that reason, perhaps, one who does not agree with the majority may voice the opinion of the minority in joining in thanking Colonel Delmé-Radcliffe for his lecture. In one word, may I say why I strongly believe in the military advantages of a voluntary system? The problem of modern war, not ancient war, not the wars of the days of Pitt, but the wars of the present day, is the elimination of the unwilling soldier. You may take a horse to the water, but you cannot make him drink; you may take the soldiers to the war, but you cannot make them fight, when the long range of modern weapons and the dispersion of commands renders each man a unit of his own. That is not theory only; we found it in practice in the war in South Africa, and it was found also even during the war of 1870 between France and Germany. The surrender of large bodies of troops after sustaining quite a small number of casualties is the outstanding feature of modern wars, as everyone who has studied them scientifically has seen to be the case. Therefore, if the object is to eliminate the unwilling, there is a vast deal to be said for eliminating the unwilling from the start by relying upon voluntary enlistment, as you would do under Mr. Haldane's scheme. Supposing we adopted the Swiss system here with compulsion, I gather from the lecturer that we should get about 130,000 recruits a year. I gather from Mr. Shee (and I think Lord Roberts is of the same opinion) that the number would be rather larger—about 140,000 recruits a year. If, on the other hand, you adopt a voluntary system, we have reason to believe, looking at the past, that we will get about 100,000 recruits a year. The question we have to ask ourselves, as practical men, clearing our minds of shibboleths, is: Which would you sooner have in the hard stress of modern war, when the guns begin to shoot—would you sooner have a hundred willing men who have been through, let us say, ten weeks' training, or 140 men, forty of whom are unwilling, and have been forced into the service, who have had four weeks' more training? I appeal to every soldier who has seen a shot fired in action as to which of those two bodies he would have; I know everyone will say he would sooner have the 100 men, everyone of whom was willing. If that be so, what is our duty? I quite agree with everyone in this room that it is the duty of every man to serve, and that we ought to endeavour to make every Englishman believe that it is his duty to serve, but I do not believe in compelling the unwilling. I admire the Swiss army, and owing to the courtesy of your lecturer a year ago I had the opportunity of seeing it at work. Compulsory service may be suited to that country, where they have no Blue-water School and no Martinet School, both of which have distinguished representatives here to-day. Both of these schools, for different reasons, regard the creation of a home army with a few weeks' preliminary training as a useless waste of money and effort. Therefore, while the Swiss have adopted universal service because the Swiss people are all of one mind, I firmly believe that in England, where we have a Blue-water School and where we have a Martinet School, our people, although the most patriotic in the world, have their patriotic energies sapped by these two schools of thought. I believe our best plan is to back up with all our heart and strength the voluntary system commended to us by Mr. Haldane, and commended to us, especially with regard to its voluntary principles, by His Majesty the King. Therefore, with respect, I would submit that the duty before us is summed up in four words, "Persuade all, compel none"; and in that spirit I most heartily second the vote of thanks.

Admiral Sir NATHANIEL BOWDEN-SMITH, K.C.B.:—Before we separate, I should like to propose that we accord a hearty vote of thanks to our dis-

tinguished Chairman, Lord Roberts, for taking the chair this afternoon. Not only this company to-day, but a large and growing number of his fellow-countrymen, heartily thank his lordship for the splendid efforts he is making to establish a system of national training. Let me just say a word with regard to the Blue-water School, which has been referred to by one of the speakers. I want you to understand that there are a very large number of sailors who are entirely with his lordship in the appeal he is now making. Whilst agreeing that the Navy must be our first consideration, they know perfectly well that the Navy has its limitations; and to show you that this is the case, I may tell you that to-day there are amongst the members of the National Service League thirty admirals. It is unfortunately the case that men belonging to, what I may call the extreme Blue-water School, occasionally write letters to the Press which causes the man in the street to come to the conclusion that we want no land forces so long as our Navy is kept supreme, but however clever such letters may be, the general public should understand that the writers are only expressing their own views, and not those of their brother officers. If the British Empire is to be maintained in its integrity we know that, in addition to a powerful Navy, and a sufficient Army, we should have a large trained reserve to maintain us in peace and to meet any future emergencies.

WARS OF THE TURKS WITH THE GERMANS.

By Lieut.-General P. H. TYRRELL, late Indian Army.

Continued from November JOURNAL, p. 1397.

THE Emperor and his councillors now thought of nothing short of the complete expulsion of the Turks from Hungary, and made great preparations for the campaign of 1684. Three armies were put into the field: one was to operate against Tekeli and the rebels in Upper Hungary; another, under Count Lesley, was to invade Southern Hungary and Slavonia; while the main army, under the Duke of Lorraine, was to reduce the frontier fortresses and march on Buda. As Shaitan Ibrahim, with the army destined for the campaign in Hungary, had not yet arrived, the new Pasha of Buda took the field with all the Turkish Militia of Hungary to interrupt the German operations; but Lorraine brought him to action and routed and practically destroyed his army, 15,000 Turks being killed or made prisoners. The Duke then marched on Buda-Pesth, took Pesth by assault after two days' siege, and, crossing the Danube, laid siege to Buda. While the siege was in progress Shaitan Ibrahim arrived with his army and made every endeavour, short of fighting a pitched battle, to relieve the town; but he could not draw off the Germans, nor seriously interrupt their operations. The Turkish garrison and inhabitants were forced to evacuate the lower town and take refuge in the citadel; here they held out desperately under the command of old Abdi Pasha, a veteran who had been Kul Kíáyá (Lieut.-General) of the Janissaries at the famous siege of Candia, and baffled all the attempts of the besiegers until the approach of winter had more effect than the menaces of Ibrahim Pasha, and put an end to the siege which had lasted four months. Both armies retired into winter quarters.

Next year (1685) the Duke of Lorraine opened the campaign by laying siege to Neuhausel, which was still held by the Turks. Shaitan Ibrahim advanced with his army to its relief, but he feared to give battle to the Germans and tried to draw them away from the siege by attacking and capturing their frontier towns; at length he laid siege to Gran. This had the desired effect; the Duke of Lorraine, fearing for the safety of Gran, left a division to blockade Neuhausel and marched against the Pasha, who promptly raised the siege of Gran and took up a strong entrenched position with his right resting on the Danube, and his left upon a range of hills. The Turks had always been in the habit of assuming the offensive, but now they made a plain confession of inferiority by entrenching themselves against the attack of an enemy inferior in numbers, and this became henceforward their usual practice.

The Duke of Lorraine made a feigned attack on the Turkish position, and then beat a hasty retreat. He sent some of his Hun-

garian spies, disguised as peasants, to report to the Seraskier that the Germans were flying in great confusion. Shaitan Ibrahim fell into the obvious trap, and his troops quitted their entrenchments, and hurried in wild disorder after the retreating Germans, only fearful lest the enemy should escape. Lorraine led his troops in two columns along the only two roads which traversed an extensive morass, and the Turks followed him in hot haste. About half of their army had crossed the morass when the Germans wheeled round and formed in order of battle, and their field-pieces opened fire on the pursuing Turks. These, taken by surprise, fell back, and the Germans advancing upon them they attempted to retire by the narrow causeways along which their rearmost troops were still advancing, and which were now raked by the German guns. The Electoral Prince of Hanover, afterwards George I. of England, led a spirited charge, which drove the Turks headlong into the morass. The confusion was indescribable; and as horse, foot, and artillery were inextricably mixed up on the narrow roads, the Janissaries shot and killed the Sipahis in order to seize their horses to escape upon; so that it is said that more Turks were slain in this battle by their own comrades than by the fire of the enemy. Shaitan Ibrahim behaved well, and did all in his power to allay the panic, but without avail; neither his threats nor his promises were regarded by the troops who took to flight in a most disgraceful manner, leaving their entrenched camp, with all their guns, baggage, stores, and treasure-chest to the pursuing Germans. When the Seraskier, who was badly wounded, found himself obliged to fly, in his rage and vexation he plucked out his beard by the roots¹

It seems that the infamous behaviour of the Janissaries in this battle was not an isolated instance, for Prince Kantemir writes as follows:—"Happy is that Christian General who sustains the first, second, and third onset of the Turks. For at the third, or at the most the fourth repulse, he will certainly see them turn their backs; and if he advances against them with a slow pace, which I have observed to be sometimes done by the Germans, he will perceive them not only to abandon their camp and cannon, and take to open flight, but also put the whole army in disorder by the confused cry of 'Giaour geldi,' 'The infidel is coming.' Once, indeed, in the year 1711, in a battle with the Russians, they renewed the attack seven times; but the reason was that the Generals of the Russian Army, not being used to an open fight with them, durst not pursue them when they gave way. For otherwise the Janissaries are not obliged to make above three charges, and if they are repulsed they abandon their camp and think of nothing but flight, pulling the Sipahis off their horses and killing such as make any resistance, and so become the worst of enemies to the Horse. For which reason the Turkish Horse, in a flight, and whenever they see their Foot giving way, never come near them, nay, avoid them more carefully than the enemies themselves."

This crushing defeat, the third they had experienced in three successive campaigns, quite demoralised the Turkish troops, and they abandoned most of the fortified towns in Hungary without attempting to defend them, and the Germans occupied the whole country up to

¹ This incident gave Byron the idea for the line in "The Corsair" describing the flight of Seyd Pasha:—

"He tore his beard, and foaming, fled the fight."

the walls of Buda. The Duke of Lorraine resumed the siege of Neuhausel and took it by storm.

Meanwhile, General Lesley had driven back the Turks in Sclavonia, and the Germans had pressed Tekeli so hard that he took refuge with a Turkish Pasha, who, for what reason does not appear clear, put him in irons and sent him as a prisoner to Constantinople. His adherents hastened to make their peace with the Austrians, and the Hungarians generally now espoused the cause of the Germans, and this further embarrassed the affairs of the Turks.

The Grand Vazir, Kara Ibrahim Pasha, put the Seraskier Shaitan Ibrahim to death for having lost the battle, and recalled Ainaji Suliman from the frontiers of Poland to take command of the army in Hungary.

But Suliman the Deceitful contrived to supplant his patron in the favour of the Sultan; Kara Ibrahim was deposed, and Suliman was appointed Grand Vazir in his stead.

The Duke of Lorraine had commenced the campaign of 1686 by renewing the siege of Buda, which was again most strenuously defended by old Abdi Pasha. Two general assaults were repulsed, during which hundreds of the German stormers were blown into the air by the springing of mines. But by the time that Ainaji Suliman drew near with his army the numbers of the defenders had been so reduced by the ceaseless fighting that it became imperatively necessary to reinforce them if the place was to be saved. The city was so closely invested that the only possible means of reaching it was to cut a way through the German lines, and the Vazir told off a force of two thousand picked Janissaries for the hazardous enterprise; they were escorted by four Pashas with eight thousand horsemen, who were to amuse and distract the attention of the enemy while the Janissaries attacked the trenches. But the German cavalry intercepted them, when the Turkish horse shamefully took to flight, and left the Janissaries to be ridden down and cut to pieces by the hostile cavalry. A second attempt was made with two thousand more Janissaries, who gained the neighbourhood of the German lines unobserved, and rushed the trenches in the quarter where the Brandenburg contingents (Prussians) were stationed. A most desperate and sanguinary struggle took place, "the Turks," says Prince Kantemir, "fighting more like wild beasts than men." Finally, only three hundred of the Janissaries, and those nearly all wounded, broke through and got into the city. The rest were all killed in the trenches, and the losses of the Germans were also very heavy. Suliman Pasha made one more attempt to throw succours into the town, but it was as great a failure as the preceding ones, and his troops became so dispirited at their ill-success and the loss of so many of their best men that they would try no longer, and began to desert to their homes in such numbers that the army was quite broken up. Buda was soon afterwards stormed by the Germans, old Abdi Pasha dying in the breach, sword in hand, like a true Turk of the old school. A general massacre of all the Turkish inhabitants followed without distinction of sex or age. The extermination of infidels was regarded with indifference or with approbation by the public opinion of the day, but a century later, when similar horrors were enacted by the Russians at Ismail, a storm of indignation was raised against the Empress Catherine and Field-Marshal Suvaroff. Christendom, which had for eighteen centuries refused to listen to the preaching of Christ, had learned the principles of Christianity from the teaching of Voltaire.

The Christian Powers imitated the practice of the Turks, and treated all Mussulman prisoners of war as slaves. Those taken by the Germans in Hungary were sold to the Kings of France and Spain or to the Sovereign Order of Malta, to man the rowing-benches of their galleys. The Turks were much prized for this arduous service on account of their strength and endurance, and they generally rowed the stroke oars of the galley. They were also made useful in a variety of ways, in which their Christian fellow slaves could not be employed on account of the risk of escape. The narratives of the Huguenots who were condemned for their conscience sake to the French galleys, bear testimony to the sympathy and kindness with which they were treated by the Turks who were their fellow captives, and who shared their detestation of image-worship. When Mass was said on board the galley, the Turks were put into the long-boat, where they smoked and jeered at the superstition of the infidels whom it was their misfortune to serve.

The Duke of Lorraine, finding no Turkish army in the field to oppose him, divided his force into several columns, under the command of Prince Ludwig of Baden and Generals Heister and Caraffa, to sweep the country and clear out all the Turks. Ludwig of Baden laid siege to Fumkirchen; the Turks hung out a black flag, intimating their intention to resist to the death, but a few days' bombardment caused them to alter their minds, and they surrendered at discretion. Temesvar was now the only province of Hungary that remained in the hands of the Ottomans, and Suliman Pasha found great difficulty in collecting sufficient troops to defend it. The treasury was empty, and the Sultan was obliged to send all his gold and silver plate to be melted down to defray the expenses of the war. The Poles and Russians were with difficulty kept at bay by the aid of the Crim Tartars, and the Venetians had gained entire possession of the Morea. Suliman Pasha managed to collect an army in the spring of 1687, with which he took post on the Danube to cover Temesvar, while the Duke of Lorraine and the Elector Maximilian of Bavaria, at the head of the Imperialist army, advanced upon him from Buda-Pesth, which had now become the German base of operations. That city was never again to hoist the Crescent banner, which had floated over its citadel for a hundred and fifty years. The ruined tomb of a Moslem Saint is now the only remaining monument of the Turkish rule in Buda.

Ainaji Suliman Pasha eagerly seized the occasion to give battle to the advancing German Army on the field of Mohacz, the very scene of the great Sultan Suliman's great victory. The very name of "Moháj" infused fresh spirit into the Turks, who fondly hoped that history would repeat itself, and that the plain of such auspicious memory would witness a second signal triumph of the Ottoman arms. The Duke of Lorraine, on his part, was only anxious to bring the Turks to battle anyhow and anywhere. The Turks attacked with great fury, but their incoherent and tumultuary charges were repelled by the rolling platoon fire of the German infantry and by salvos of grape-shot, which wrought fearful havoc in their crowded ranks. This was the first occasion on which the Germans had used grape against the Turks, and its murderous effects struck terror into the hearts of the Osmanli soldiery, and materially affected the fortunes of the day. The German line, steadily advancing after each repulse of the enemy, forced the Turks, still fighting, to retreat to their camp, which they hastily attempted to entrench; but it was too late. The Germans, again advanc-

ing to attack and redoubling their fire, the Turkish horse took to headlong flight, and were soon followed by the Janissaries. Prince Eugene of Savoy, now a Colonel of Imperial Dragoons, was the first to pass the Turkish trenches at the head of his regiment. Some of the Dragoons dismounted and stormed the entrenchments and opened a way for their mounted comrades. The camp with all the guns, stores, and baggage, and many standards and other trophies became the spoil of the victors. The field tent of Suliman Pasha, made of scarlet cloth, was taken by the Bavarians, and may now be seen in the Military Museum at Munich, where it is erroneously described as the tent of Sultan Suliman.

Among the many noble volunteers from foreign armies who were serving with the Imperialists in this battle was the young Duke of Berwick, natural son of our King James II., who afterwards became famous as a Marshal of France and a successful General in the War of the Spanish Succession.

After his victory, the Duke of Lorraine invaded Transylvania. The Prince Michael Apaffy made a show of resistance in order to save his credit with the Turks, in case they should again gain the upper hand; but he soon made his submission, and the German Army went into winter quarters in his country.

Meanwhile General Lesley had invested the castle of Walpo, in Slavonia. The Turkish garrison at Essek, knowing that the German Army was approaching, resolved to abandon their post, and mined their fortifications, intending to blow them up after evacuating the place; but on the German advanced guard appearing before the walls, they were seized with panic, and fled so precipitately that they did not even take time to fire the mines, and the fortress fell intact into the hands of the Germans. Walpo fell soon after, and not a Turk remained in Slavonia.

Ainaji Suliman rallied his beaten army at Belgrade, whence he sent letters to the Sultan, excusing his defeat by attributing cowardice and incompetence to the Pashas and the Aghas of the troops. These officers, finding out what he had done, incited the Sipahis and Janissaries to demand their arrears of pay, which were long overdue. The Vazir had no funds available, and the soldiery broke into open and violent mutiny.

Suliman Pasha fled to Constantinople, and the army elected Siavush Pasha as their chief, and insisted on his leading them to the capital, and demanding the head of the Grand Vazir. Siavush, who was a bold and ambitious man, desired nothing better, for he aspired himself to the first office in the State, though he was of obscure origin, and had raised himself by his bravery and force of character to his present station. As the army drew near to Constantinople, the helpless Sultan tried in vain to stay its march by sending first some money, which was divided among the troops; then the seals of office and the patent of Grand Vazir to Siavush Pasha; and finally the head of the luckless Suliman. Siavush having now got all that he wanted, tried to pacify the mutinous troops, but they threatened him in his turn, and insisted on his leading them to Constantinople. There the delegates of the army assembled at the Orta Jama or Garrison Mosque, and agreed upon the deposition of the Sultan Muhammad IV., to whose incapacity they attributed all the disasters that had befallen the Empire of his illustrious ancestors.

The Sultan stoutly maintained that these disasters were due to their own lack of courage and discipline; but they arrested him and placed him in confinement, and raised his brother to the throne, under the style of Suliman II. The new Sultan had passed his life in honourable captivity in the Seraglio, and was a pious recluse with no more talent for war or State affairs than his dethroned predecessor. The troops now demanded the Julus Bakhshish, or Accession donation, which it was the custom to give to them whenever a new Sultan ascended the throne; but the treasury was absolutely empty. When the new Grand Vazir, Siavush Pasha, failed to satisfy them by promises he had recourse to threats, upon which another violent mutiny broke out. The furious troops attacked the Vazir's palace, and, enraged by his desperate resistance, murdered him and all his household, even to the ladies and women of his harem, with great brutality. Rioting and pillaging occupied the soldiery and distracted the city for some time till they were sobered by the news of the progress of the German army. The Elector of Bavaria, who had relieved the Duke of Lorraine in the chief command of the Imperialists, opened the campaign of 1688 by the investment and siege of Peterwardein. It soon capitulated, and he marched on Belgrade and laid siege to that famous fortress. A breach having soon been effected, the town was stormed; the Turks fled into the citadel, but the German troops, mingling with the fugitives, entered its gates along with them before they could be closed. The Turks fought most desperately, and 9,000 of them were slain before their resistance was quelled and Belgrade in the possession of the Germans.

At the same time the fortresses of Stuhlweissenburg and Erlau, which had been blockaded by German detachments for some three or four years, were reduced by famine to capitulate; and Temesvar, which was also blockaded by a German force, was now the only fortress that remained in the hands of the Turks in Hungary.

The new Sultan had nominated Rajab Pasha as Seraskier to lead the army against the Germans, and he reluctantly accompanied it himself, in compliance with the demand of the troops. The army proceeded no farther than Adrianople, and the Sultan had to sell his plate and jewellery to provide for the expenses of the march.

He was greatly alarmed by the fall of Belgrade, and sent an embassy to Vienna, ostensibly to announce his accession to the Emperor, but really to sound the Austrian Cabinet on the terms of peace that they would accept. But the Emperor and his Ministers were looking forward to a triumphal march to Constantinople, and would hear of no terms short of the cession of Bosnia, Servia, and Bulgaria, in addition to Hungary and Transylvania, while the Sultan was only willing to yield up such territories as were already lost, and moreover insisted on the retrocession of Belgrade. So no agreement could be reached, and the war was prolonged for ten years more, with the result that the terms offered by the Sultan in 1688 were after all finally agreed to by the Cabinet of Vienna in 1699.

Being hopeless of peace Suliman II. determined to try the chance of war once more, and in the spring of 1689 he marched to Sofia. There he himself halted and sent on the Seraskier, Rajab Pasha, to attack the Germans in Servia. Rajab conducted his operations under the direction of his astrologer, who selected lucky, or as it turned out, unlucky days on which to give battle to the Germans. He was badly beaten on two occasions, and fled back to Sofia, thus verifying

the truth of the Turkish proverb: "Kul Munajmun Kizábun" (all astrologers are liars).

The Germans, after their victories, over-ran the whole of Servia and occupied the fortresses of Nish and Widdin. The Haiduks or Servian outlaws who combined the profession of patriotism with the practice of brigandage, and who retailed to the Turks some small measure of the misery which they inflicted on their Christian subjects, now issued from the woods and descended from the mountains, and were welcomed by the Germans as allies and enrolled as auxiliaries. Prince Ludwig of Baden led a German Army into Bosnia and made some progress towards subduing that province. The prospects of the Turks had never seemed blacker, nor their situation more hopeless, when two events occurred which completely changed the complexion of affairs. One was the outbreak of war between France and Germany; the other was the appointment of Mustafa Kuprili, son of Fázil Ahmed Kuprili, to the post of Grand Vazir.

The Emperor had joined the coalition inaugurated by King William III. against the policy and pretensions of the Court of Versailles; and the difficulties of maintaining two great wars at once, on the western and eastern frontiers, overtaxed the resources of his Empire. He found himself obliged to withdraw the greater part of his troops from Servia, and to assume a strictly defensive attitude towards his Turkish foe. It was this consideration which had prevented the Germans from advancing on Sofia after having defeated Rajab Pasha. The French Ambassador at the Porte had done all in his power to prevent the Sultan from making overtures for peace to the Emperor, assuring him that his Royal Master was contemplating coming to the assistance of his distressed brother Monarch; and his promises had a great effect in encouraging the Sultan to hold out against the extravagant Austrian demands. He put the unlucky Rajab to death, on the ground that he had given battle to the Germans without orders, and confided the future conduct of the war to the new Grand Vazir. The presence of one righteous man at the head of affairs wrought a miraculous change in the Turkish administration. Mustafa Kuprili inherited the virtues and the talents of his father and grandfather, and he at once gained the confidence of the Army and the nation. He restored discipline, re-organised the finances and replenished the treasury. He banished the crowd of useless camp-followers, who pandered to the vices of the soldiery, and carefully weeded the ranks of the army of all weak and spiritless men, apprehending the error of his predecessors in command who had laid more stress on quantity than on quality. He severely condemned the negotiations for peace, declaring that no true Turk would ever consent to yield up one foot of the territories of Islam to the Giaurs.

He succeeded to a great extent in infusing his own spirit into the Army, and in the spring of 1690 set out at its head from Adrianople to attack the Germans in Servia. The Tartar Khan Selim Girai had quitted the Polish war to serve at the head of his wild horsemen in the Vazir's Army. The first obstacle to their march was the Palanka,¹ or Fort of Shahr Koi, which was garrisoned by 500

¹The term Palanka, used by the Turks for a small fort or fortified post, was probably derived from the Latin *planca*, for a palisade. It is still often to be met with in the Balkan Peninsula.

Servian Haiduks. They held out gallantly for four days, when further resistance became hopeless, and they capitulated on condition of being allowed to depart free and uninjured, and not serving against the Turks for the remainder of the war. The Janissaries tried to violate the capitulation, but the Vazir enforced the observance of it. He next besieged Nish, which the German garrison maintained against repeated assaults for twenty-five days, but finally surrendered on condition of being allowed to march out with the honours of war and proceed to Belgrade. As they were marching out the Turks recognised among them some of the Haiduks of Shahr Koi. The ranks of the garrison were searched, and all the Haiduks of Shahr Koi were found in disguise among them. The Vazir abrogated the capitulation, made prisoners of the garrison, hanged the officers of the Haiduks, and condemned the men to the galleys. Khan Selim Girai, preceding the march of the army with his Tartars, intercepted a German column some thousands strong marching from Belgrade to reinforce the garrison of Nish, and after a hard fight forced them to retire. The German garrisons evacuated Widdin and Semendria on the approach of the Vazir's Army, and he cleared all the country of Servia and Bosnia of the enemy, and finally invested Belgrade, which was held by a garrison of 16,000 men, half of whom were German soldiers and half Servian Irregulars. Prince Ludwig of Baden, with all the forces he could collect in Hungary, marched to relieve it; the Vazir detached half of his army to prevent the Prince from crossing the Save, while with the remainder he pressed the siege vigorously. By a fortunate accident for the Turks, which the pious Vazir interpreted as a miraculous interposition of Providence, a powder magazine exploded and made a breach in the ramparts; the Turks immediately rushed to the assault, and in the confusion won their way in. The garrison defended themselves desperately, and most of them were slain, a few escaping in boats across the Danube.

The Vazir crossed with his army into Hungary, and Ludwig of Baden retired before him, for the disparity of numbers was too great to allow him to risk a battle. The Vazir had released Tekeli, and had appointed him Prince of Transylvania in the room of Michael Apaffy, who had died; and he now sent Khan Selim Girai and his Tartars and a corps of 10,000 Turks with Tekeli to take possession of Transylvania. They attacked General Sigbert Heister, who was at the head of the German and Hungarian troops in Transylvania. He was accounted one of the best tacticians of his time; he had been in the siege of Vienna, where his hat was shot through with a Tartar arrow. The hat transfixed by the arrow is to be seen at the Ambros Museum in Vienna. He gave battle to the invaders, but the Hungarian troops had been tampered with by emissaries of Tekeli, and in the midst of the fight they turned their weapons upon their German comrades, and attacked them in flank, while the Turks and Tartars charged their front. This decided the battle; the Germans were overwhelmed and most of them put to the sword; the remainder, with General Heister, were made prisoners. Tekeli now made a triumphant progress through his new dominions; but his triumph was shortlived. Ludwig of Baden led his army into Transylvania to avenge the defeat of Heister; at his approach Tekeli, Turks, and Tartars all hastily evacuated the country, and it was recovered by the Germans as quickly as it had been lost.

It would appear as if the proper strategy for the Grand Vazir to have pursued would have been to follow the German main army, to prevent its interfering in Transylvania and to break the blockade of Temesvar. That fortress had now been closely blockaded by the Germans for three years, and most gallantly and successfully defended by the veteran Khoja Jáfir Pasha; some of the garrison had already actually died of starvation, and Mustafa Kuprili knew the straits to which they were reduced. He sent off from Belgrade one thousand Sipahis, each man carrying a sack of meal on the crupper of his horse, to relieve the wants of the besieged town. They made their way with such secrecy and celerity through the hostile country that they took the blockading force by surprise and made their way into the town. The reception they met with was even warmer than they anticipated, and they might as well have fallen in with the enemy.

One of those scenes of turbulence and violence took place which so often at this time stained the annals of the Turkish Army: the Sipahis and Janissaries quarrelled over the distribution of the provisions; muskets were fired and sabres drawn, and the meal was polluted by the blood of Mussulman stain upon the meal-sacks. A furious battle was fought in the streets of the town, in which numbers were slain on both sides before the exertions of the Pasha and his officers could restore order and peace.

This and many other exploits of the Turkish cavalry in these wars show how much they might have accomplished had they been properly trained; the material, both in men and horses, was excellent, but all its good qualities were neutralised by the stupidity of the leaders.

The Grand Vazir led his army across the Save into Slavonia and besieged Essek on the Drave with the idea of securing a passage into Southern Hungary, but the arrival of winter interrupted the siege, and he led back the army into winter quarters at Adrianople, where he occupied himself in making great preparations for the next campaign, which he hoped and expected would result in the recovery of Hungary.

(To be continued.)

THE VON LÖBELL ANNUAL REPORTS ON MILITARY MATTERS IN 1906.

*Précis from the German by Lieut.-Colonel E. GUNTER, p.s.c.,
late East Lancashire Regiment.*

(Continued from November JOURNAL, p. 1380.)

PART II.—Continued.

FIELD ENGINEERING IN 1906 (a).

1. FIELD FORTIFICATION.

THOUGH short, this is an interesting chapter by Colonel Frobenius:—

"Literature has not busied itself with the field fortification of the Russo-Japanese War, as it has with the siege of Port Arthur, yet the former played an important technical part in the drama. Captain Töpfer has given a comprehensive account of this in Nos. 2 to 4 of the *Kriegstechnische Zeitschrift*, 1906. The Russians, he says, fortified, the Japanese only entrenched. The former constructed positions to bleed to death in, the latter to ward off attack until the favourable moment for counter-attack. This is in accordance with our new Field Fortification and Infantry Training manuals."*

The fear that troops would cling to their entrenchments has not been justified. The Japanese in their attacks made no forward movement without digging themselves in, and yet never hesitated to leave this cover in order to construct fresh cover further to the front. It is only the *habit of entrenching* acquired by careful training that has caused this fear to vanish. It is now acknowledged that skilful entrenching is indispensable; all leaders are, therefore, required to resort to it when their task can thereby be lightened. If entrenchments have been constructed, they are not on that account to be allowed to influence tactical decisions. On the other hand, the fear that they may turn out to be useless † is to be no reason for the neglect to construct them. The troops who are to defend them should construct them, and in all cases more than one possible direction of attack must be considered, and more than one front entrenched.

(a) *Feld-Befestigungs Vorschrift*, 23th June, 1906. (Provisional.) Mittler, Berlin.

* See also Julius Meyer. *Principles of Field Fortification*. Berne: Haller's Press.

† Königgrätz in 1866.

In Germany, the principle of the single defensive line, strengthened by every possible means, is adhered to, as advanced posts and positions expose their defenders to being overwhelmed, and hinder the fire from the main position. Their occupation should therefore be confined to fortress warfare. Therefore, the Montdésir † theories do not find favour here. He advocates a position withdrawn behind the crest of the ridge, which is to be held by light troops only, etc. The German regulations provide for this without falling into the error the Russians made in having so many rallying positions that the defence was hindered thereby. Our "Field-fortification" simply says:—"Where the ground favours it, special supporting-points may be constructed as rallying positions in rear of weak points." Redoubts have, speaking generally, disappeared from our text-books. They are, however, rightly retained for special cases where small garrisons have to defend certain limits, as on lines of communication. The strongest form of defence against artillery is *concealment from view*, so assimilation to the surrounding country is a governing principle of construction. On this account profiles for infantry cover of more than 12 inches high above ground are exceptional only, as in cases where the soil is too hard for deep digging. To lessen the depth of the target offered from front to rear they are usually made only 2 feet wide, and with steep sides. This also lessens the labour and the time it occupies. They are generally designed for men to fire standing, with head and overhead cover, to lessen the effect of shrapnel. The greatest simplicity is aimed at, all the more capacious and elaborate designs having disappeared.

General Rohne acknowledges the great difficulties of observing artillery effect if such trenches are properly laid out and constructed; all they can do being to distribute their fire over a certain depth of country. He further remarks that the effect of artillery fire against thinly occupied trenches, like these, is not worth the ammunition expended.

Cover for Guns.—For the new field guns, the principle is to enhance the protection afforded by the shield by first throwing earth up between the shield and the ground. Then to lower the ground 2 feet 8 inches, if this can be done before it is necessary to open fire. This takes two hours. For the old 1896 gun and the light field howitzer, the first thing is to dig cover for the gunners, and only when there is ample time trouble about cover for the guns. The trenches for the infantry in support are to be quite separate, and should give 6 feet of cover, and have ramps for sorties at intervals. As to shelter-trenches for an attacking force, the Regulations are vague. The example of the Japanese ought to have led to experiments, at all events, on our part. "*Der angriff auf befestigungen nach Japanischen erfahrungen*," the Swiss *Monatschrift für Offiziere*, No. 10, is referred to on this. A couple of pages are devoted to mining experiences before Port Arthur, etc.

PERMANENT FORTIFICATION, 1906.

The Report has a long and learned chapter by Lieut.-Colonel Frobenius on the development of permanent fortification based

† Piarrot de Montdésir in *La Revue du Génie*, May 1904. See the JOURNAL, December, 1905, p. 1400.—E.G.

on the experiences of Port Arthur and on the latest writings on the subject, to which it frequently refers in the course of what is practically a treatise on the subject of the attack on a modern fortress, so, of course, impossible of reproduction here. He remarks that Port Arthur was not an armoured fortress to which the new writings generally apply. He particularly mentions Fitsch, *Festungs Krieg* (Siebel, Berlin, 1907); vol. 37-38 (Port Arthur) of *Kriegsgeschichtliche Einzelheiten*; Captain v. Brunner's *Festungs Krieg*, based on his father's well-known and long-established work (Seidel, Vienna, 1906); B. Nöwegard, translated into German by W. Schmidt, *Belagerung v. Port Arthur* (Dieterich, Leipzig, 1906); Töpfer's *Erfahrungen in Festungsbau aus Port Arthur*, with Captain Schwarz's views (who took part in the defence) in the *Kriegstechnische Zeitung*, 8th October, 1906, and General Langlois' views and those of his opponents as to having a girdle of semi-permanent works only, etc. It mentions various works and ideas regarding "*Sperrbefestigungen*," and discusses these. It describes the fortress manoeuvres at Langres in 1906, from which it says much may be learnt, though the accounts published have been but meagre and chiefly refer to the artillery attack. Every kind of modern appliance was made use of: field telegraph and telephone, war balloons and kites. The rocky nature of the ground forbade the construction of sunken batteries much favoured by the French, and the operations were hampered by difficulties of water supply, 20 motors having to convey 250 hectolitres (5,500 gallons) a distance of 80 kilometres (50 miles) to the troops daily.

As regards Port Arthur the Report is of opinion that General Stössel should have made a more active defence; and that on the 26th May† he should not have contented himself with passive resistance, but have used his reserves for a vigorous counterstroke.

PROGRESS OF PERMANENT FORTIFICATION IN INDIVIDUAL STATES, 1906.

Austria-Hungary.—The Report brings to notice the completion of certain forts in the Carpathians and Friaul and in the Predil pass with rotatory armoured turrets, armoured casemates, quick-firing guns, lookout stations, searchlight apparatus and other modern improvements.

Belgium.—The Report describes at some length the new Antwerp projects, which it is of interest to epitomise. At last, after wearisome negotiations and discussion, the Belgian Lower House came to a decision on the 24th January, 1906, as to the new Antwerp forts and by the law of the 30th March the new organisation of the engineers came into force. The great enceinte constructed by General Brialmont is to be destroyed, but this will not be commenced until the end of 1909. The present line of outer forts will take its place. Fort No. VIII. is to be razed so that Hoboken may be widened. A new connecting line of works will be constructed joining up the spaces by the forts I. and VII., and will be continued from fort Merxern by the Oorderen redoubt to the Scheldt. The long N.E. line will run

† This was the date on which the Japanese successfully stormed the Russian advanced positions at Nantschan.—E.G.

parallel to the long harbour basin to be restored on the right bank. On the left bank the old works, Cruybeke, Zwyndrecht and St. Marie, with the great ditch of defence, are considered the new inner line of defence. The new outer girdle forts are distant from this on the south side over 12 kilometres ($7\frac{1}{2}$ miles), on the E. over 8 kilometres (5 miles), and on the N. 7 kilometres ($2\frac{1}{2}$ miles), and extending across the Nethe and Rupl,† does not hinder offensive counterstrokes there. On the left bank, between Dod and Rupelmonde,†† six forts and five connecting works are to be constructed in order to complete the girdle. For the present they are going to content themselves with two existing Rupelmonde forts and Haesdonck and the intermediate works. This certainly leaves a wide gap which renders abortive the object of absolute immunity from bombardment. The total length of the girdle is over 100 kilometres ($62\frac{1}{2}$ miles), and it would require at least 80,000 men to garrison it.

It has been decided to raze the existing fortifications of Termonde and not to construct the four new forts which were projected. On the other hand, it was proposed to strengthen the line of the Meuse by certain forts pushed forward towards the frontier on that side. The movable armament of the Meuse defences was strengthened by the addition of 8·7-cm. (3·4-inch) quick-firing howitzers.

France.—Certain works at Toul and Belfort are, it is said, to be entirely reconstructed: Frouard, Gondreville and St. Vincent-at-Toul, and after these Domgermain, are to be taken in hand. Then Roppe and Blois d'Oye, the furthestmost forts of Belfort. They are to be strongly concreted. In Frouard sunken armoured batteries are to be constructed. In Belfort the wire entanglements are to be supplemented by 20,000 iron palisades embedded in concrete. A permanent flash telegraph is being erected at the Vauban barracks there. It is said triangular forts with bombproofs and of weak profile are to be constructed as connecting works to be garrisoned by one or two companies with 75-mm. quick-firing field guns. Lebaudy airships are to be supplied for Verdun, Toul, Épinal, Nancy, Belfort and Mézières.

The enlargement of the Dunkirk harbour necessitated the opening of the enceinte on the west side, to neutralise which a new fort has been commenced at La Petite Synthe. Certain constructions were commenced in Algeria and the Colonies.

Great Britain.—Great Britain has gained in fortifying the harbour of Singapore a most important supporting point between the Indian and Pacific Oceans. This harbour is provided with six wet docks. D'Urban is to be made a naval harbour. The armament of fortified harbours, such as Fort Borisand, Plymouth, etc., with new guns, is steadily progressing. The defence of the Esquimaux and Halifax (N.S.) harbours is entrusted to the Canadian Government.

United States.—President Roosevelt has called the attention of Congress to the want of fortifications in Chesapeake Bay and in the insular possessions of the United States. £52,000 are to be spent on Honolulu and Pearl Island.

ARTILLERY MATERIAL IN 1906.

Speaking generally, the past year has been one of quiet progress in artillery material. Most agree as to a length for the recoil of the

† That is, on the S. side.

†† That is, facing the Dutch frontier.

barrel of 1·3 metres ($4\frac{1}{4}$ feet). As to ballistics and thickness of shields many differ. The question of a uniform calibre for horse artillery and field artillery guns is still pending in certain States, and this is especially discussed in reference to field howitzers. It obviously depends on the very varied circumstances obtaining in different countries. There was some difficulty in adopting the barrel-recoil system of howitzers, and Ehrhardt and Krupp solved it differently, the former preferring a shorter, the latter a longer recoil, which has given satisfaction in its trials. It is a question whether there is any necessity for a *light* field howitzer, whether field howitzers of two different calibres, or whether a medium howitzer shall be used for all purposes. As regards carriages, the main thing is the stability of the ammunition wagons. Efforts continued to be made in 1906 as heretofore to design a maid-of-all-work projectile for field artillery. The Swedish Captain Holmgrén's inventions are mentioned. Automobile gun carriages have been experimented with. An Ehrhardt automatic 5 cm. (1·97 inch) field gun for use against war balloons was shown in the great exhibition lately closed. The Krupp and Ehrhardt factories have been kept busy during the year with many foreign as well as home orders. There is appended to this year's Report a tabular statement showing details of construction of field, etc., guns in the chief European States.

Belgium.—The trials of artillery material in Belgium have ended in the choice of the Krupp system against the St. Chamond on account of the greater simplicity of the former. 5 cm. (1·97 inch) shields are to be used. The total weight of gun and limber, with 40 rounds of shell in the latter, is now fixed at 1,865 kilogrammes (36 cwt. 2 qrs. 11 lbs.). Field howitzers are on trial, Cockerill having sent in two barrel-recoiling field howitzers of 10·5 cm. (4·1 inch) and 12 cm. (4·7 inch), and Krupp competes with howitzers of like calibre, Ehrhardt also presenting one of 10·5 cm. St. Chamond does not compete. The trials were exhaustive, but the results are as yet unknown. Progress has been made in the rearmament of the fortresses, the guns of which have become antiquated. New steel howitzers of 12 cm. (4·7 inch) calibre are to be mounted. They are to be 20 calibres long. The length of recoil is about 3·9 feet, the muzzle velocity about 1,050 f.s. The Cockerill-Nordenfellt eccentric-screw breech action is used. The projectiles (shrapnel and common) weigh 44 lbs. The new armament will play an important part in the reorganisation of the fortress of Antwerp.

Bulgaria.—The following additional details of the 7·5-cm. (2·95-inch) new Schneider-Creusot field gun, which, as reported last year,† was and continues to be but slowly delivered, have come to hand. Length 32 calibres (7·10½ inches), breech-action Cault screw, weight about 7½ cwt., weight of gun and limber loaded 33¾ cwt., 38 rounds in the limber, 98 in the ammunition wagon, weight of shrapnel and common shell 13½ lbs., number of bullets in shrapnel 294, weight of each 10 grammes (154·3 grains), muzzle velocity 1,640 f.s., weight of ammunition wagon loaded 32 cwt. 2 qrs. 5 lbs., shield 4 mm. (157 inch) thick.

France.—The horse artillery have now all been armed with the 1897 7·5 cm. Q.F. field gun. The new mountain gun is said to be

† See the JOURNAL for December, 1906, p. 1492.—E.G.

of similar construction, but of 6.5 cm. calibre (2.46 inches). It is to be capable of firing 23 rounds a minute, greatest range 5,500 yards. Four mules are required for the transport of each gun. As regards heavy field artillery Major Rimailho's 15.5 cm. (6.1 inches), which has given satisfaction in its trials, is said to have been practically decided on. It is said to weigh 2,000 to 2,400 kilogrammes (39½ to 47 cwt.). It is a long gun which can fire five rounds a minute. General Langlois is said to be against this very heavy gun and to favour a sort of pompon firing common shell wherewith to combat shield-protected batteries. Important trials have been made with the heaviest French siege artillery ordnance. The solution is said to be found in a 27 cm. (10.6 inches) mortar. The following details must be accepted with caution:—Length 9.3 calibres (8 feet 1½ inch), weight 5 tons 13 cwt., weight of shell 3½ cwt., muzzle velocity 950 fs., range about 5,200 metres. On the march it requires four great wagons, one each for the mortar, its carriage, the mortar bed and the platform.

Germany.—The re-armament of the German artillery progressed as planned last year. Details are given in the annexed table.

Great Britain.—The details of the new British field guns are also given. The peculiar arrangement of the barrel of the 18-pounder under the cradle is said to give greater stability. It is much criticised by some. The absence of common shell among its projectiles is considered by some dangerous.

The Report gives details of the new 12 cm. (4.7 inch) Q.F. siege gun, ranging to 13,600 metres (about 8½ miles). Weight of shell 8 cwt. 1 qr. 17 lbs., number of bullets in shrapnel 990.

Switzerland.—The re-armament of the field artillery with Q.F. guns was completed last year, and that of the mountain guns is in progress. The four batteries which had hitherto six guns are now reorganised into six batteries of four guns each. The field howitzer trials seem to be concluded. Besides the 12 cm. howitzer of Krupp already adopted, a 12 cm. (4.7 inch) gun of Krupp's has been experimented with. The howitzer, with a muzzle velocity of 300 metres (984 fs.) carries the shell, weighing 46 lbs., 7,630 yards. The 12 cm. position gun, which weighs nearly 4 tons, with a muzzle velocity of 1,987 fs., carries its shell of like weight nearly 11,000 yards.

Turkey.—The re-armament with Krupp guns has proceeded steadily and will be completed by the summer of 1908.

United States.—The manufacture of the new 7.62-cm. (2.7-inch) field gun is said to have made good progress during the year, and now all its parts are being made in the States. Mountain guns and field guns are to be made of the same calibre. The new 12 cm. (4.7 inch) Q.F. siege gun details are as under:—Length 28 calibres (about 11 feet 5 inch), weight about 15½ cwt., length of barrel and recoil 5½ feet, shields 5 mm. (.197 inch) thick. Total weight of gun on the march (without detachments) 3 tons 11 cwt., weight of shell 5½ cwt., muzzle velocity 1,700 fs., greatest range 7,600 yards. The annexed extract from the comparative table given in the Report shows certain details.

COMPARATIVE TABLE OF CERTAIN MODERN ARTILLERY IN EUROPEAN STATES.†

	Field Guns.				Field Howitzers.			
	Austria-Hungary.	France.	Germany.	Great Britain.	Russia.	Austria.	France.	Germany.
Designation of gun, etc.	M/1905.	M1897	M/98n/A	13 pr. 33	M/1902	M/99	155 MMR	1 FH '98
Calibre (inches)	3-01	2-95	3-03	3	3	4-09	6-1	1 FH '02
Length (ft. and ins.)	7' 6"	7' 9"	6' 9"	6' 1"	6-8	4' 6"	—	8' 8"
Approx. weight in cwts.	7	9	7-6	6-1	—	8-3	—	8'
Height fired over (ft.)	3' 3"	2' 11"	3' 1½"	3' 1"	—	—	—	21
Shields and thickness	Hinged -19"	2 side-2"	appr. & lower hinged -14"	14"	—	None.	—	None.
No. rounds in limber	33	24	36	24	—	21	—	—
Wght. behind team (cwt.)	31-1	38-3	31-1	31-5	—	36-5	94	43
<i>Ammunition Wagon.</i>								
No. of rounds carried	90	96	88	76	—	30	—	36
Weight loaded (cwt.)	35-3	38-3	35	36-1	—	—	—	—
<i>Ammunition.</i>								
Approx. weight of com- mon shell	14½ lbs.	11½ lbs.	15 lbs.	None.	14½ lbs.	31½ lbs.	94½ lbs.	31½ lbs.
" " " " " " " "	14½ lbs.	16 lbs.	15 lbs.	12½ lbs.	14½ lbs.	28 lbs.	—	28½ lbs.
" " " " " " " "	139 grs.	183 grs.	154 grs.	170 grs.	167 grs.	200 grs.	—	—
" " " " " " " "	315	280	300	236	259	460	—	500
No. " " " " " " " "	5,985	5,985	5,450	6,228	5,985	5,985	—	6,104
Fuze timed 15 yards	1,640	1,738	1,524	1,610	1,928	1,000	—	9,938
Shrapnel muzzle vel. (f.s.)	21	20	20	29	50-20	—	—	—
No. of rounds per min.	9	12	6	—	16	12	—	—
Ammun. wagons per Batt.	5'	4' 7"	5'	5' 3"	—	4' 6"	—	—
Track of wheels (ft.)	—	—	—	—	—	—	—	—

† I have made such selection as appeared likely to be useful, giving the approximate equivalents in English measure. I am not responsible for the accuracy of the details, some of which seem doubtful.—E.G.

SMALL ARMS IN 1906.

Since France and Germany adopted the pointed bullet and improved smokeless powder nearly all the Powers have striven to increase the ballistic effect of their military rifles. This is in fact attained by the increased muzzle velocity of the 8 mm. calibre rifles, which in the German rifle with the S bullet reaches 2,720 fs. In calibres under 7 mm. it reaches 3,280 fs. Point blank range at man's height extends now up to 980 yards. This much lessens the labour of judging distance and sight-adjusting. Further improvements are hardly to be expected; Major Cei's invention (see further on under Italy) may therefore prove successful. But how long will it remain so? Already experiments are being made to utilize the recoil power for loading the rifle. As in automatic pistols the gas opens the lock and throws out the empty cartridge, and a fresh one springs from the magazine into its bed ready for firing. The firer has therefore only to think of aiming and of refilling his magazine when emptied. This will give him more time for aiming. As the rifle remains at the shoulder his aim is not disturbed until his magazine shots are expended. The automatic principle is being applied in various ways in different countries. The question of "*stopping power*" has been much discussed. It is likely that with the new bullets and the improved powder this will now be found sufficient even with a 6.5 mm. (.256 inch) calibre, so that 7 and 8 mm. calibres are likely to disappear when rearmament takes place. In pistols, on the other hand, the larger calibres are likely to be retained or even increased; some have 11 mm. calibre (.44 inch). It is an obvious advantage to be able to see how many rounds are left in the magazine of a rifle. Dr. Gothardi, of Innsbrück, has invented an arrangement for this, which is described in Vol. VI. of the *Kriegstechnische Zeitschrift*, 1906, with illustrations.

Austria-Hungary.—The infantry and rifle regiments are armed with the 8 mm. Mannlicher repeating rifle M/95, the cavalry with a carbine of similar pattern, the field and garrison artillery and men of the A.S. corps with a short rifle on the same system, while the train have the old carbine M/90. An armourer has invented a new safety arrangement. When the rifle is held in the firing position the safety spring is automatically released without any special manipulation. When the hand quits the small of the butt after firing the safety arrangement at once acts and the rifle cannot go off till grasped as for firing. This is described in Danzer's *Armee-Zeitung*, 1st February, 1906.

Belgium.—There is no change from the Mauser 7.65 mm. (.301-inch) of 1889, with which the whole of the troops, gendarmerie, etc., are armed, but the garrison artillery have a rifle 4 inches shorter, with bayonet M/93.

Lieut. Bremer's electro-automatic steel target† is to be officially tried. Its advantages are :—(1) The whole attention of the officer or

† This is a target of the ordinary size, but of steel, painted with bull's-eye, rings, etc., connected by electric wire with a miniature target of similar pattern at the firing point, on which the exact position of each shot is instantaneously signalled. It has been adopted this year by the Belgian Government. It might be adopted at Bisley and elsewhere for rifle matches, to obviate wrong signalling.—E.G.

N.C.O. superintending the firing can be directed to the firer, as he is not obliged to be looking towards the signaller. (2) As there is no waiting for signalling three or four times the number of shots can be fired in the time taken in firing one with the ordinary target (20 shots a minute can be fired and signalled). (3) Errors in signalling are avoided. (4) Though expensive at first it saves money in the long run. It is said to cost only 8 marks a year in repairs.

France.—In 1905 repeated alterations have again been made in the 8 mm. Lebel rifle 86/93, with which the infantry and cavalry are armed (the latter with similar carbines), and besides the new sights further alterations are contemplated. *La France Militaire* rightly, we think, remarks that this rifle is used up and it would be better to spend the money on a new weapon. The Government shies at the cost and wishes to delay till other nations have rearmed the whole of their infantry. But there is little doubt, denials notwithstanding, that a new 7 mm. (.276 inch) rifle has been decided on. It is said to be the Pralon automatic rifle perfected in the school of musketry at Chalons. The new D bullet is 39.2 mm. long (1.54 inch) and weighs 12.8 grammes (198 grains), giving a muzzle velocity of 725 m. (2,371 f.s.). Its greatest range is 4,500 metres. At 1,000 metres the culminating point is 5.4 (11 feet), at 2,000 metres 41.25 m. (135 feet).

Germany.—The whole of the infantry and cavalry are not yet armed with 1898 rifle or carbine. The Navy were armed last year with a new automatic pistol M/1904, which, though something like the Borchardt-Lüger, differs from it in many ways. The calibre is increased to 9 mm. (.327 inch). It has a barrel 150 mm. (about 6 inches) long. It weighs 915 grammes (about 2 lbs.); its bullet 8 grammes (about 57 to the lb.). It has the Spitz shape and is 15 mm. (about 6 inches) long. Its muzzle velocity is something under 300 m. (984 f.s.). It has a detachable stock and a very good safety arrangement. See the *Kriegstechnische Zeitschrift*, 1906, p. 258.

According to the *Revue du Cercle Militaire*, a gun maker named Schrader, in Göttingen, has invented a new cartridge surpassing the new 8 ammunition, especially as regards its penetration of the protecting shields of field guns. The Minister of War has ordered experiments to be made with it.

Great Britain.—The Report says the whole of the cavalry, the Indian frontier corps, and certain others, are now armed with the Lee-Enfield short rifle, the remainder still carrying the Lee-Enfield of 1895. The infantry officers, it says, carry carbines, the remainder the Parabellum revolver. It goes at length into the details of the objections to the Lee-Enfield short rifle, but says the opposition to it appears to be waxing feebler. The delivery of 500 new rifles weekly from the Ishapoor small arms factory in India is mentioned. It quotes *THE JOURNAL* of November, 1905, giving its note of the introduction of the Ross rifle, and some failures in Australia reported by *Arms and Explosives*, May, 1906, of the Lee-Enfield rifle.

Italy.—The first and second line of the infantry, the Bersaglieri, and the three lines of "Alpini" troops and the Sardinian Territorial Militia carry the 6.5 mm. (.256 inch) repeater, Carcano-Mannlicher system, M/91. The other territorial troops are still armed with the old Vetterli rifle of 1887. The Bersaglieri cyclist companies have carbines M/91, the Alpini train repeating short rifles.

An automatic pistol, Gly senti system, was introduced for all Army officers. It has eight cartridges in the magazine. The Navy is provided with the 7.62 mm. (.3 inch) automatic Mauser pistol with detachable stock. It fires 50 shots in a minute. The bullet weighs 220 grains, muzzle velocity 1,387 fs.

Major Cei-Rigotti is now trying experiments whereby the principles of his automatic rifle, of which several successful trials have been made, can be adapted to existing rifles.

Russia.—Certain minor defects in the 3-lined rifle, which gave general satisfaction during the late war, are being remedied in the new construction of this rifle. It is possible, however, that it may eventually be decided to have a new automatic rifle, as the French have done.

Spain.—After exhaustive trials of several well-known pistols (Borchart, Mauser, Bergmann, Browning, Mannlicher, Parabellum, Perfect, etc.) the 9 mm. (.35 inch) Bergmann automatic M/1903 has been selected for the Army. It is to be made in Belgium, not Germany. Details of Major Campo-giso's automatic 9 mm. pistol are given.

Sweden.—The committee appointed to experiment with the Danish Rekyl repeating machine gun has reported favourably on its advantages, especially to cavalry.

United States.—The regular troops were re-armed in 1906 with the 7.62 mm. M/1903 new rifle. The Navy were also to be supplied with these rifles in place of the old Lee pattern. A new sword bayonet 40.6 cm. (15.98 inches) long replaces the old 25 cm. (9.84 inch) bayonet. Telescopic sights are to be fitted to certain rifles, which are to be given to the best shots. The Zeiss sights are the most preferred. The wearing away of the rifling of the new rifles after 1,000 to 1,500 shots is remarkable. Barrels of improved steel are therefore being experimented with. Great pains is being taken with the sighting, each rifle being carefully tried and proved.

The Report gives a list of the technical publications of the year dealing with small arms, among others Lieut.-General Rohne's *Schiesslehre*, and his paper in the *Jahrbücher* for March, 1906, on the German rifle, 1898, and the S bullet, *La Revue Internationale Supplément*, 1889, and Dr. Körting's *Schiessversuche und Erfahrungen* in the *Militär-Wochenblatt*, 1906, No. 1, etc.

MILITARY COMMUNICATIONS, ETC., IN 1906.

Signalling.—The heliograph by day and lamp signalling by night are the chief means of signalling in the present day. These were not introduced into the German Army till the end of the last century. The Report describes in detail the various apparatus in use, their advantages and disadvantages, their use in South Africa, etc., all of which being well known to our readers is not transcribed here. It also describes the formation of the German signal companies in 1904-5, their organisation, increase, etc., with some examples of their use in the war against the Hereros in South-West Africa, where it says their organisation and their apparatus proved efficacious. It is thought that these will be equally useful in future European warfare. If these means of

communication had existed in 1870-1, it says, much doubt and some unnecessary marches would have been saved.

War Balloons.—These made great progress in 1906. His Imperial Majesty, the German Emperor, gave the impetus to the formation of an association for the study of motor airships. Through this society Major v. Parseval's airship was brought to greater perfection and funds were also supplied to Count Zeppelin for further trials with his great rigid airship No. III.† The Russo-Japanese War showed that even captive war balloons, the use of which, especially for fortifications, entrenched camps, etc., cannot be overrated, require careful preparation and practice in handling in peace. Both belligerents are now paying attention to this. Italy and England are making experiments. The Universal Exhibition in Milan, in 1906, enabled inventors to bring forward a goodly show of war balloons. The German were notable for their solidity, the Italian for their lightness and elegance. On the occasion of the 25th jubilee of the Berlin Balloon Society experiments were made with motors which followed the course of the balloons. These showed how difficult it is for even the most experienced driver of a motor-car to keep up with a balloon and make sure of catching it on its descent. A motor wagon that can carry a Q.F. gun capable of great elevation is, however, a stern foe of the war balloon. At the motor exhibition in 1906 the Ehrhardt firm had a motor protected by a cupola shield with a 5 cm. (1.97 inch) Q.F. field gun mounted on a turn-table. This has been described in all the technical illustrated papers. It cannot be considered a success, its weight hampering its speed so much. In France, however, unarmoured motors with Q.F. field guns have been designed, with greater promise of success.

The Zeppelin airship is alluded to. The very successful experiments of Count Zeppelin over Lake Constance were, however, made since the Report was written, as were those in England. The Report considers France still far ahead of other nations. Next year's Report may be looked for with increased interest, as much progress has been made during the current year.

Grosse's *Entwicklung der Motor-Luftschiffahrt im 20 Jahrhundert* (Salle, Berlin) is recommended.

† See the JOURNAL for December, 1906, p. 1497.—E.G.

INTERNATIONAL ARBITRATION.

Translated by permission from the "Marine Rundschau."

THE question of International arbitration has entered during the last few years, to a certain extent into the domain of practical politics; and in view of the special importance attaching to an arbitral decision on disputes arising over points of International Law, it will be interesting to cast a glance at the present state and history of the question. The question of arbitral jurisdiction having an international character, the greatest care has been taken in the preparation of the following study to consult the available literature on the subject, which has appeared in different countries. The philosophic aspect of the question, which has given rise to so many discussions and the airing of so many Utopian views will be passed over; it will be sufficient to give a brief study of the juridical, historical, and political sides of the question.

1.—THE JURIDICAL ASPECT.

So long as civilisation is not everywhere equally far advanced, the establishment in the world of one universal law will not be possible. But even in countries equally civilised the strength of nations unequally developed works continually against the establishment of any equilibrium between nations, with the result that International Law has no natural guarantee, and only exists up to a certain point under the guise of the right of the strongest. There has been none the less developed among the Christian States of Europe and America, to which Turkey gave her adhesion in 1856 and Japan somewhat later, an International Law of which the sources are similar to the Common Law of States, special treaties and, later, the doctrine. The means for pacifically settling differences between countries are as uncertain as International Law, they repose as the latter does on no fixed basis.

We can distinguish among the methods:—

- Diplomatic negotiations.
- Congresses or conferences.
- Good offices, mediation and arbitration.

There are some cases in history where it is difficult to distinguish between arbitration and mediation. If the State which poses as a mediator does not fulfil the functions of an arbitrator, *per contra*, the latter often not having received full powers passes to the rôle of mediator. Naturally the arbitrator to whose decision the parties have submitted their case of their own free will exercises more influence on the course of policy than the mediator.

The arbitral decision is regularly preceded by an arbitration treaty or a compromise in which the questions in litigation are clearly set forth and the arbitrators named. In such an agreement the desire for a pacific solution of the subject of litigation and the duty of submitting matters to the decision of an arbitrator are already manifested.

Uniform regulations for arbitration have been laid down by the memorable Hague Conference in 1899. The most important result of this Conference, in which 26 States took part, among them Japan, China, Persia and Siam, is the Convention known under the name of "The Hague Convention of 1899," on the subject of the peaceful settlement of International disputes. This Convention has been ratified by the Powers which took part in the Conference, and it contains the arrangements for regulating arbitration, and to which we shall often refer in the course of this study.

Arrangements Relative to Arbitrators.—The choice of arbitrators in the past has been carried out by a variety of methods. The Hague Convention of 1899 regulated this question in Article 32, as follows:—"Arbitral duties can be conferred on a single arbitrator or on several arbitrators selected by the parties of their own free will or chosen by them from among the members of the permanent Court of Arbitration established by the present Act."

Failing an agreement as to the constitution of the tribunal by the two parties interested, the following method of procedure is to be adopted:—

Each side will nominate two arbitrators and these together will select a president.

Should an equal number of votes in this case be cast for two nominees, the choice of a president will be entrusted to a third Power to be selected by agreement between both parties. If no agreement is in this case arrived at, each side will nominate a Power and the choice of the president will then be made by the two Powers so selected.

The Hague Convention makes certain special provisions on the subject of the permanent Arbitration Tribunal mentioned in this article, and which come into force if agreement cannot be arrived at privately. It mentions among the signatory Powers a certain number of personages whose position fits them for this rôle of International arbitrator, and from among whom the parties appealing to arbitration would select. The functions of the Arbitration Tribunal are regulated; its business is transacted by an International Bureau sitting at The Hague.

In the course of history, Princes, Popes, Bishops have often been chosen as arbitrators. They were able, as can be understood, to obtain substitutes for their duties as arbitrators. Later on, private persons specially selected for this work, Faculties of Law, some Corporations (the Senate of Hamburg, for example), and certain Tribunals have been chiefly chosen.

The Functions of the Arbitrators and Legal Force of their Decision.—In Article 48 of the Hague Convention it is laid down:—"The tribunal is authorised to determine its competence to interpret the compromise as well as the other treaties which may be invoked in the matter, and to apply the principles of International Law." One would believe from this that the arbitrators themselves fix the

limit of their powers. But in practice these limits are already fixed by the Treaty of Arbitration, so that the decision of the arbitrators which went beyond the limits of the matter under litigation would have no legal force. History shows that, in certain cases the arbitrators have been conceded in a most explicit fashion the liberty of themselves fixing the limits of their powers.

Thus the *rôle* of arbitrator does not permit him to take up the position of mediator, although this *rôle* has been often filled by certain sovereigns. The parties at issue would often find it dangerous to reject the offer of mediation from the head of a powerful State.

The Arbitration Tribunal, that is to say, the arbitrator, possesses neither the obligation nor the right to see to the carrying out of the verdict given, nor, supposing even that he has at his disposal the necessary force, of employing against the parties any form of coercion. But there is nothing to prevent the compromise containing arrangements for the settlement of the terms or for such arrangements coming into play.

The arbitral decision ought, to have the force of law, to rest solely on International Law. "The ordinary rules for regulating an arbitral decision resting on International Law are, according to Bulmerincq (in Holtzendorff's *Handbuch des Völkerrechts*), sometimes those of law, sometimes of equity. One cannot expect that they should be founded entirely on International Law, because the questions raised are not always of an International nature and cannot always be settled according to International Law. If the questions fall within the province of civil or criminal law, the rules for solving them will be derived from one or other of these laws. In International disputes it is not always possible to decide questions in accordance with International Law, if the rules do not make provision for this. In some such cases, and in order to fix the amount of the damages and interest, it is necessary to judge according to equity."

One cannot appeal from an arbitral decision. Yet, according to Bulmerincq, it cannot be carried into effect in the following cases:—

1. If the compromise is not valid in law, or
2. Is violated;
3. If the decision is contrary to law;
4. If it is practically unjust;
5. If there is a blunder chargeable to one of the parties or the arbitrators;
6. If the parties have not been heard or not properly so;
7. If the arbitrators have shown partiality;
8. If one party has acted with fraud, or
9. In a dishonest fashion, or if the decision
10. Imposes something improper, for example, if it is insulting to the honour or independence of a State;
11. If one side has bribed the arbitrator, or
12. If it has employed fraud against the other side.

One knows from the above list how the execution of the decision will depend on the good faith of the parties, so long as an Arbitration Tribunal has not received the sanctions necessary so that the greater part of the restrictions enumerated above *a priori* fall through.

Commissions of International Enquiry.—For the Commissions of Enquiry the Hague Convention, in Article 9, thus expresses itself:—"In litigation of an International order in which neither honour

nor essential interests are concerned and arising from a divergence of appreciation on points of fact, the signatory Powers judge it useful that the parties, who are unable to arrive at an agreement through diplomatic channels, appoint, in so far as circumstances permit, an International Commission of Inquiry charged with the duty of facilitating the solution of the difficulty by throwing light on it by an impartial and conscientious examination of the questions of fact."

These Commissions, like arbitrators, are appointed by agreement arrived at beforehand. The members of the Commission are chosen by the parties as seems good to them, or in accordance with the regulations laid down for the choice of arbitrators. The Commission's only duty is to establish the facts and not to give an arbitral decision.

At the time of the Hull incident a good deal was heard of the first appearance of an Arbitral Tribunal, when the question was simply one of a Court of Enquiry. There is only an Arbitral Tribunal when parties are in litigation. This condition was never realised, because Russia, in presence of this deplorable mishap, never refused to take on herself the juridical consequences. In this affair it was the pressure of public opinion and the naval predominance of the one Power, which were the deciding factors in the case.

Clauses on Arbitration and Permanent Arbitration Treaties.—Since 1870, it has become customary to add to International treaties a so-called "compromise" clause. It obliges the contracting parties in the event of dispute over the provisions of the treaty to solve them by pacific means. It often contains some arrangements for pronouncing the arbitral decision and on the choice of arbitrators.

Much more important have become in recent times the permanent treaties of arbitration, which we find first in America. They extend the arbitration clauses to disputes of the most diverse character. If these treaties have nothing more in the shape of guarantees than the obligation of International Law, one nevertheless finds in them a real victory for pacific views. The Hague Convention on which the contracting parties base themselves constitutes to a certain extent the complement of these treaties. The signatory Powers do not yet find themselves in a position to decide on the introduction of compulsory arbitration decrees, but the Hague Conference has regulated by means of the extensive work it has carried out the form of arbitral decisions, and it has also facilitated the choice of the juridical methods.

To make things clearer, let us glance at the draft resolution submitted to the Hague Conference:—

The arbitral decision is obligatory on the signatory Powers in every case where it does not touch the national honour or the essential interests of the Powers.

1.—In cases of differences in appraising or of litigation where pecuniary damages are the object.

2.—In cases of differences in appraising or of litigation touching the payment or return of receipts produced from the following sources:—

- 1, receipts from posts, telegraphs and telephones; 2, receipts which have for their object the protection of submarine telegraph cables; 3, the despatch of traffic on railways; 4, measures for preventing collisions at sea; 5, the

means for giving aid to the sick and wounded in war; 6, the protection of literary and artistic works as well as industrial property (patents of inventions, trade marks, manufacturers' marks, social reasons); 7, weights and measures; 8, reciprocal gratuitous support of necessitous sick; 9, sanitary questions; 10, conventions against phylloxera and murrains; 11, extradition conventions; 12, frontier conventions when they relate to technical and non-political questions.

If we now turn our attention towards history in order to more clearly understand the conditions underlying the question, we will see better what may be expected from the operation of permanent Arbitration Treaties.

II.—A GLANCE AT HISTORY.

Arbitration Among the Ancients and the Middle-Ages.—Arbitration has been practised from ancient times.

Among the Greeks, it was often the custom to invite a third city (*πολις ἐχχλητος*) to pronounce an arbitral decision. The Confederations known under the name of *Amphictyonies* are of special interest. Heftler does not recognise in the *Amphictyonies* Assemblies any idea of an arbitral purpose. Their immediate object was the protection of the common sanctuaries and the celebration of annual fêtes. But they also served to maintain the principles of International Law, because disputes were smoothed over and offences against Civil and International law punished. The number of States taking part rose to thirty, the votes were apportioned according to their importance. It is thus that the *Amphictyonie* of the Delphians struggled for centuries against despotism and disunion. The political influence exercised by these Councils was chiefly circumscribed because Greece did not constitute the whole world and foreigners were on a different footing in the several Grecian States. With the development of the Roman power little by little the authority of these Congresses disappeared.

The activity of the Delphic Confederation suggests the dominant idea in the actual circumstances that the preliminary condition for the effective working of a permanent arbitral tribunal is an equal degree of civilisation among the contracting Powers and a crushing superiority of the signatory Powers over the rest of the world. Because an Arbitral Tribunal which is to solve pacifically disputes among nations ought to be able to have the support of an irresistible superiority on the part of the signatory powers.

The history of the Roman Empire offers but few examples worthy of being mentioned, because it busied itself with the conquest and domination of the entire known world. The superiority of Rome did not allow any interests to exist next to hers having equal rights to her own; force decided; there was hardly any occasion for an arbitral decision to be pronounced in accordance with law and equity.

One can, however, mention what was called in the time of Tarquin II. the *Ferie*, later the *fetial tribunal*, which was composed of twenty priests and had for its object to maintain peace and smooth over disputes. Dreyfus (*L'Arbitrage International*) styles

these priests *Diplomates sacerdotes*. There was also in ancient Rome the institution known as the "*recuperatio*."¹

The *Reciperatores* had for their principal duty to act as permanent judges and decide as promptly as possible in disputes between Romans and foreigners.

The fall of the Roman Empire and the creation of new States brought forward anew some important arbitration cases.

In particular, the Spiritual Power which rose on the ruins of Rome has often been called in to arbitrate. As early as A.D. 452 Pope Leo I. offered himself as mediator between the Emperor Valentinian and Attila. He succeeded in persuading the King of the Huns from invading Italy and to retire to the Danube. Several of the Popes, in consequence of the disputes between the different Italian States, have posed as mediators and have often pronounced arbitral decisions.

Later on we shall have to refer to the arbitral judgment given by Pope Innocent III. in the struggle for the Imperial crown between Otto of Brunswick and Philip of Suabia.

In the mediations without number and the arbitral decisions of the Popes of this epoch, of which the enumeration will be useless here, the juridical and political conditions are only rarely comparable with the actual conditions.

A good example of arbitration is given by the Bull "*Inter Cœtera*" of the Pope Alexander VI. in 1493, who decided on the rival pretensions of Spain and Portugal for the countries of the New World.

To-day the Pope decides again on similar grounds of dispute. One has only to recall the dispute between Spain and Germany on the question of the Caroline Islands. Dreyfus writes enthusiastically on this subject (*L'Arbitrage International*):—"L'Europe a vu avec surprise l'apologiste de la force matérielle s'incliner devant le plus haut représentant de la force morale qui soit au monde." This arbitration of Pope Leo XII. takes quite another different signification if one considers it in the light of the whole Bismarck policy. One recognises the more readily in this case a mediation.²

Down to our own times, the idea of a permanent arbitration exercised by the Popes has found zealous partisans, but the hopes of these enthusiasts do not seem to have been realised.

The pacific efforts of the Middle Ages had already led, during nearly a thousand years, the greater number of Christian States to the establishment of what was called *The Truce of God* (*Treuga Dei*). The suspension of hostilities was ordained at least for certain fixed days of the week and feast days. The breaking of the truce was punished by penalties, by excommunication and also by corporal chastisement. This institution, which in Germany was not a law of

¹ *Recuperatio est, cum inter populum et reges, nationesque ac civitates peregrinas lex convenit, quonodo per reciperatorem reddantur res reciperenturque, resque privatas inter se persequantur.* (Sell, Dic., "*Recuperatio der Römer*"). There is *Recuperation* when between the people (Roman), kings, nations, and foreign States, one law can be acknowledged, according to which claims due are rendered and received and special business regulated.

² See Bonfils, *Le Droit des Gens*.

the Empire, but bore an ecclesiastical character, was replaced later by what was known as the *Perpetual Land Peace* (Ewige Landfriede).

By the constitution of this *Land-Peace*, the German princes engaged themselves in the first place to abstain from all hostility either by themselves or their subjects for a settled time. With the diminution of the Imperial power and justice, separate efforts were made in certain States to maintain peace up to the time when, after the unsuccessful efforts of other princes, Maximilian I. succeeded in 1495 in bringing about an accord between all the members of the Diet at Worms and establishing the *Ewige Landfriede*, which prohibited all internecine war. The employment of force was to be punished by a fine of 2,000 marks in fine silver. A Supreme Imperial Tribunal was instituted and the Empire was divided into administrative circuits. In order to obtain the necessary resources for the tribunals and the execution of these peace measures, an Imperial impost was levied termed *Gemeine Pfennig*.

A special creation of this time, which appears in German history, was the tribunal of arbitrators (*Austrägalgerichte*), which presents some important points of comparison from which to judge the actual movement towards International arbitration. The decadence of the Imperial power, the danger to all property of the law of the strongest, the little respect which was shown for the ordinary tribunals, all tended towards the middle of the 13th century to the establishment of an arbitral jurisdiction which led along the pathway of peaceful settlements. The Empire did not succeed in establishing generally this jurisdiction, so that until the creation of the Supreme Tribunal of the Empire it was only exercised as the result of special treaties between princes. One found at that time, in a form almost analogous to that which is practised to-day, clauses and arbitration treaties of which the most important is that concluded by the Electors in 1424.

After the establishment of the *Ewige Landfriede* there came into being for the settlement of the differences between all the immediate members of the Empire, the arbitral jurisdiction called the *Austrägalinstanz*, from which appeal could be made to the Supreme Tribunal of the Empire and the Aulic Council.

It is useless to show where the hopes of the pacifistes of that time would eventually have led, and how the social and religious ideas and the intervention of foreign Powers had begun to lead the German people to the brink of the abyss. The tribunal of the Empire was wanting in the support of a solid Imperial military organisation, the importance of which was revealed to our people for the first time by the Great Elector.

At the time of the Confederation of the Rhine the Institution of the Arbitration Courts became a jurisdiction for the criminal affairs of the particular State in the province of which they acted, whilst disputes between the members of the Confederation had to be settled by the Assembly of the Confederation. The Germanic Confederation did not, it is true, arrive at the constitution of a permanent Confederated Tribunal, because Bavaria and Wurtemberg in particular saw in one a danger to their autonomy; but the States bound themselves to bring their disputes before the Assembly of the Confederation and on no pretext whatever to make war on each other. The competence of the Arbitral Tribunal of the Confederation (*Bundesausträgalgerichts*) extended to the Confederated Princes and the Free

Cities of Germany, for whose disputes there was no judge after the dissolution of the German Empire. As acts of self-defence within International Jurisdiction had to be prohibited, disputes in which Princes of the Confederation figured as private persons were excluded from the jurisdiction of the arbitrators. Procedure only commenced when recourse had first been had to mediation.

The decisions of the arbitrators had legal force once they were pronounced and could only be disputed by the ordinary course of law. An appeal could only be allowed if new evidence could be brought forward. This arbitral constitution found no place either in the Constitution of the North Germanic Confederation or in that of the German Empire. Article No. 76 of this last runs:—"The disputes between the different Confederated States, as far as they are not of a private nature and do not fall under the competence of the tribunals, are settled by the Council of State (*Bundesrat*). For the settlement of these disputes the *Bundesrat* has the assistance of the Tribunal of the Empire."

The policy of Treaties of Arbitration has been long practised in Germany, and for all that, in spite of general goodwill, it is only by arms that the Empire has been founded. It is a lesson which should be taken to heart by those extremely zealous visionaries who have seen in the near future universal concord peacefully established in Europe, or at least among the civilised Christian States.

Next to the arbitral activity of the Papacy and the events which have merited special mention in German history, one finds in the Middle Ages an infinite number of arbitrations and compromises. But a more detailed account would be without interest. Almost everywhere the parties concerned from the first did not wish for war, they found in an arbitral decision a method of extricating themselves from the affair which was compatible with their sentiment of honour.

(To be continued.)

THE GEORGIAN MILITARY ROAD.

By Colonel C. E. DE LA POER BERESFORD
(late Military Attaché at St. Petersburg).

TIFLIS boasts of two good hotels and numerous *dukhâns* or *serâis*. The latter form interesting points of observation for the artist, but the European traveller is not educated up to their ways. At the Hôtel de Londres, near the Vorontzoff bridge, or the Orient (pronounced Ariânt), opposite the baroque Moorish Cathedral, he will find cleanliness and comfort, absent as a rule from provincial hotels in Russia. But of towns in the Caucasus, quaint and curious though they be, I do not care to speak. The country is beautiful as any one can desire, and is as yet unspoiled by the globe-trotter or advertiser. Through its recesses the Russian engineers have driven the finest mountain road in the world. The Splügen, St. Gothard, Cenis, are insignificant in comparison. It is called the *Voennoe Grûzinskaya Dorôga*, or Georgian Military Road.

Most travellers declare that this famous pass should be traversed from north to south, i.e., from Vladikâvkas to Tiflis, from Europe into Asia. Coming from the interminable flatness of Russia the mighty mountains doubtless fill the mind with an indescribable joy. If only what is seen were described, the public would not be deceived by the accounts written of foreign lands. In Vol. VI., p. 40 of the English translation of M. Elisée Reclus's (as a rule so accurate) *Geographie Universelle* it is stated: "Although with a greater mean elevation than those of the Alps, the Caucasian peaks are far less covered with snow and ice. . . . The absence of snow produces a corresponding scarcity of glaciers." This shows the danger of obtaining information at second hand, for every word is incorrect in this extract, save that as to the mean elevation of the range. More astounding still is it to read, in the 1877 edition of Keith Johnston's *Dictionary of Geography*: "The mountains of the Caucasus are either flat or cup-shaped." The writer evidently had not seen the glorious panorama of snow-covered summits that unrolls itself from Kutâis to the north of Gori and Kaspi.

The only way to see the Georgian pass in comfort is to hire a post-chaise and four horses at the Government post establishment, at the end of Golovinsky Street, in Tiflis. The price for the journey to Vladikâvkas is about £5, including the road tax. Tips of sixpence at each of the twenty posting stations add another half-sovereign to the cost. As the distance is 201 versts, say 114 English miles, and that at the steep places six horses are provided, the fare is not excessive. The journey had best be broken at Mléti. For the first ten miles of the way the scenery is comparatively uninteresting. At Mtskhet, the ancient capital of the Georgian kings, a poor village at the junction of the Arâgua and Kûra, the mountain road commences. The ancient castle of Harmotsica (in Georgian *Arma-Tsiké*, which

means Ormuzd), now a mass of ruins, recalls the very finest corners of the Rhine. From here to Dushèt the road gradually ascends through an agricultural country. Far to the east is the magnificent wooded Kakhétia. Dushèt and its environs are at present in a very perturbed state, the landlords can get no rents, and the peasantry are in armed revolt. The next stage is a short one, but extremely interesting. The Caucasus mountain chain stretches for over 600 miles, a mass of limestone peaks buttressed by shale, through which the igneous upheaval pierces only twice, 16,000 feet above sea level, at Elbruz and Kasbek. All the other mountains, many of which are higher than Mt. Blanc, are below these basalt giants and of aqueous formation. But so vast has been the contortion produced by volcanic action, that the strata are twisted and turned into every conceivable formation. At times it is almost impossible to believe that these rocks are formed by the agency of water. The outlines of the mountains, far from being "flat or cup-shaped," are varied, angular, peaked, pointed, almost amorphous. There are the *sierra* or saw of the Spaniards, the *mamelons* of Elbrüz, the sugarloaf of Tetruld, the twin cones of Ushba, the indented wall of Adai-Kokii; and the basalt peak of Kasbek to which we shall come presently. The glacier field is enormous. Beside the Kàra-gom, the *Mer de Glace* is an ice-pond. The military road crosses, it does not intersect this vast chain. At Ananûr, about fifteen miles from Dushèt, it enters the mountains.

Ananûr is a tiny town perched on a little hill separating the valleys of the Arâgua and another stream. From these rivers unsophisticated trout rise greedily at any fly. The church is a splendid cruciform structure, whose dentelated ornamentation and round arches suggest an origin of the X. or XI. century. The tower is many sided so as to appear almost cylindrical. Its conical roof, like that of the rest of the edifice, is of glaring tin, that much distresses the eye. The old walls and those of the castle are built of huge limestone blocks. Above the village the mountains rise steeply. The whole of the next stage is in a narrow valley seldom lit by the sun's rays. The sides of the hills are clothed with luxuriant vegetation. The inhabitants are Georgians, living in comfortable cottages and dressed, as a rule, in the flowing *tcherkeska* or flowing skirted coat of rough wool, with cartridge cases sown across the breasts. Pàssanûr is a delightful village crowded into the bed of the stream by the descending slopes. It lies at about 3,000 feet above the sea. In its market place when last I passed through it was chained a little grey bear that was offered to me for 10 roubles. I thought that cheap; as he was, he might prove an awkward travelling companion, so declined the offer.

We enter now the zone of schists and shales between the limestone and the granite. The mountains are like huge, bare, brown, downs. Perched on their shoulders are the half-underground villages or *douls* of the Ossetes, where neither horsemen nor guns can attack them. The vulture soars above, his piercing eye scanning the valley. Here and there are seen the quaint Ossetian tombs with convex, curved roofs, and ledges, along which are placed skulls and horns, as offerings to the manes of mighty hunters, now before the Lord. But of game there is little visible. Multitudes of small *raptors* hover around, or sit on the telegraph wires. The children in summer wear white wide-awake hats, that can be bought for a few pence, and are most excellent head gear. The Ossetes, as one of them told me, who was most anxious that I should enlist him and some 100 of his tatterdemalions for

service against the Boers, are the bravest people in the world. And the Russians informed me that the boast was by no means a ridiculous one. From Passanûr to Mléti mountains 9,000 to 10,000 feet high rise above the oak scrub in the valley. Distant views are obtained of the *Siem Brati*, or Seven Brothers, whose saw-like edge divides Europe from Asia. At Mléti there is a fine old church. The traveller will do well to stop here for the night, for the post-house is warm and fairly clean, whilst the food is passable.

From the windows of the Mléti post-house is obtained the view of the zig-zag ascent shown in the photograph. In the snow-field seen to the observer's right stands the station of Gûdaûr, at a height of 6,800 feet, just on the southern slope of the Arâgua. The "Seven Brothers," clad in eternal white mantles, watch the way. Close here is a little cross of granite. From it, the mountain which marks the great divide or water-parting, takes its name *Krestovaya Gorà*, or Mountain of the Cross. Here the road passes its highest point a little over 7,000 feet; climbing skilfully over the col it crosses, but does not cut through the mountain chain. Probably the hosts of Gengis Khân swept over here on their way to ransack Georgia. In the next eight miles the traveller descends 2,000 feet. But the incline, managed by ramps in zig-zag, is nowhere abrupt. The *yamschik* detaches two horses at Gûdaûr and starts the remaining pair at a gallop. At each rapid turn of the road the chaise seems as if it, with its horses and contents, must be launched into eternity. But not a bit of it! With a sudden turn and no check of speed, the next ramp is entered, and taken at the same wild gallop. After crossing the pass a few times one becomes accustomed to the pace and finds it most exhilarating. But the first time—well, perhaps one is not sorry to pull up in safety at Kobi, in the Terek Valley.

The north wind blows fresh. It is as if grey Europe had sent her cold messenger into Asia. The next post-house is Ziôn. Thence to Kasbèk the valley opens out and the uncomfortable strata assume the most fantastic patterns where the soil reveals them. Suddenly Kasbèk, if the weather be clear, appears in the splendour of its snow-crowned solitary dome. Its ancient names were *Mkuinvari* the "Ice Mountain," the "White Mountain," and "Christ's Mountain." The Georgians called it *Stephans-zminda*, St. Stephen's. Kasbèk is simply the corruption of *Kasi Bèg*, the name of a local chief. Some say Prometheus was bound here. At all events there were plenty of carrion-birds to tear at his liver. An interesting excursion can be made on horseback to the foot of the Devdoràk glacier. Kasbèk is a splendid solitary mountain between 17,000 and 18,000 feet high. It yields in grandeur to Ararât or Fuji, only because of the proximity of other giants.

The military road soon enters the gloomy defile of Dariel, the *Porta Sarinaticæ* of the ancients. Four thousand feet high, the rocky portals of Asia frown on Terek's waters, that rush madly to the north. At the north entrance of the defile the Russians have built a loop-holed redoubt with castellated walls. Close to it a limestone rock juts into the valley surmounted by a ruined tower. This is the *Zamok Tamàra*, or castle of Tamàra, in which a fabled queen of the name dwelt and took toll of travellers. She was wont, it is said, to cast their bodies into the foaming Terek after she had done with them. This mythically beautiful demon, of whom Lermontôf so sweetly sings, must not be confounded with the pious Queen Tamàra of Georgia, in

the XII. Century. The mountains recede and at Lars, Terek winds quietly through a grassy valley, in which stand sentinels of limestone, taking lovely tints in the sunshine. Their summits are 3,000 feet above the waters that almost lave their walls. There is plenty of scrub and cover here, in which the woodcock and wild boar love to dwell. At Lars post-house is a specimen of the Tûr (*Capra Caucasica*), whose magnificent form is sadly caricatured by the entomologist. This grand mountain goat is finer than the best mouflon that ever wore a curled horn. It will be met with on Kasbèk at an elevation of from 7,000 to 10,000 feet; but is shy and difficult of approach at all times.

From Lars to Balta we galloped with a *troika*, or three horses harnessed abreast, of which the outer off-side, amused himself by taking flying leaps over the heaps of road-metal by the wayside. The scenery here, though pleasant, appears tame after the gloomy rocks of Dariel, or the glimpses of the snow mountains through the clouds. A curious feature in the military road is the manner in which avalanches are avoided. It was at first deemed possible to protect the way from these snow-slides by galleries, similar to those constructed on the Canadian Pacific Railway. But these were found insufficient for the purpose. At great expense, therefore, regular tunnels were cut into the sides of the mountains, where the avalanches were most dangerous. Between Kobi and Lars are several of these structures. A regular service of snow-clearers is kept at work in winter. The men employed wear masks or coloured goggles, to ward off snow-blindness. This is a necessary precaution. I found on my first journey across the mountains that I could scarcely see for some time owing to neglect of some similar measures. Vladikâvka is uninteresting. Here we find the mud, dust, or snow, of Russia, her interminable steppes, not without beauty; the railway; the return to the banality of the plains.

JAPAN :
REGULATIONS WITH REGARD TO MILITARY DRILL IN
THE PRIMARY, MIDDLE, AND NORMAL SCHOOLS.

Extracts from Rules and Regulations, published by the Department
of the Minister of Education, dated October, 1905.
(Communicated by the General Staff.)

PRIMARY SCHOOLS.

General Course.

THE course is divided into two, the primary (4 years) and the advanced (2 years).

Each city, town, or village is responsible for having its own primary school or schools.

When, however, a town or village is too poor to have its own school, the chief of a gun (ward) will direct two towns or villages to have schools for their common use.

The governor of a prefecture (two or more guns) will decide upon the number and localities of the primary schools of a city. The opinion of the mayor with regard to the financial condition will also be taken into account.

The subjects of instruction and of training of the primary course are as follows:—

- Ethics.
- Japanese language.
- Arithmetic.
- Gymnastics.
- Drawing.
- Music.
- Manual Labour.

Lessons in the last three are given free.

The subjects of instruction and of training in the advanced course are as above, with the addition of:—

- Japanese history.
- Geography.
- Physics.
- Agriculture.
- Commerce.
- English language.

Lessons in the last four are given free.

The department of education has the copyright of all books and maps used in the primary schools.

Holidays of 90 days, in addition to Sundays, are given in the year.

Each primary school must own its own buildings, ground, and playground.

Children are to be sent to school from the day that they attain six years of age.

Each city, town, or village is responsible for the maintenance of the primary schools within its own jurisdiction. The only sources of income of a school apart from the amount given by the Government or by the city, are the tuition fees collected monthly from students, 20 sen (5 pence) a month from each in the primary course, and 80 sen (20 pence) when in the advanced course. When more than one child attends a school from a family, the eldest pays the regulation fee, while the younger ones pay 10 sen ($2\frac{1}{2}$ pence), no matter what course they may be in.

Physical Training.

The main objects of the gymnastics taught in the primary schools are the following:—

1. To establish uniformity of development of all parts of the body.
2. To practise the limbs to move smartly.
3. To protect or to improve the health.
4. To make the mind cheerful and bold.
5. To maintain discipline.
6. To teach the value of co-operation.

In accordance with the above principles gymnastics are taught in the primary course, while in the advanced course military drill is also taught.

Swimming and out-door exercise will also be taught in the advanced course.

Endeavours should be made to instruct students in such a way that they shall assume in their every-day life the positions in which they have been trained.

The annual course of study will be from 1st April until 31st March, this time is divided into three periods, as follows:—

First period, 1st April to 20th July.

Second period, 1st September to 25th December.

Third period, 7th January to 20th March.

No class should contain more than 70 students in the case of the primary course, and 60 in the case of the advanced course.

THE PRIMARY COURSE.

Gymnastics.

Four hours a week throughout the 1st, 2nd, 3rd, and 4th years.

THE ADVANCED COURSE.

Military Drill and Gymnastics.

Three hours a week throughout the 1st and 2nd years. Instructions issued by the Minister of Education with regard to the improvement of the physique of students will be found in Appendix 1.

MIDDLE SCHOOLS.

General Course.

The subjects of instruction and training are as follows:—

Ethics.
Literature (Japanese and Chinese).
Foreign languages (English, German, or French).
History (Japanese and foreign).
Geography.
Arithmetic.
Natural history.
Physics and chemistry.
Main points of home law.
Economics.
Drawing.
Music.
Gymnastics, including military drill as far as company drill.

Military Training.

Three hours a week throughout all five years; in each year there are three periods.

The total number of students in one school will be between 400 and 600.

No class should contain more than 50 students.

The detail of training of the military drill in the middle schools is as follows:—

First year, drill without arms.

a. Individual drill.

b. Section drill.

Second year, as above and company drill.

Third year, as above and gymnastic exercises, together with practising words of command.

Fourth and fifth years, drill with arms as above.

Middle schools should provide the following equipment:—Rifles and bayonets, knapsacks, small stores for rifles, cleaning rods, horizontal bars, wooden horse, ladders, round spars and parallel bars.

NORMAL SCHOOLS.

General Course.

The subjects of training and of instruction are as follows:—

Ethics.
Education.
Japanese and Chinese literature.
Japanese and foreign history.
Geography.
Arithmetic.
Physics and chemistry.
Natural history.
Penmanship (Japanese handwriting exercises).
Music.
Gymnastics.

The course of study lasts 4 years, each of 45 weeks' duration.
No class should contain more than 40 students.
There are 34 hours of study in the week.

Military Training.

First year (6 hours a week), gymnastic exercises, individual drill with arms, section drill with arms.

Second year (6 hours a week), as above, together with company drill with arms, bayonet fighting, drill in the field, and the main points of military science.

Third year (6 hours a week), those subjects mentioned above, and also that detailed below.

Fourth year, those subjects as above, and also the method of teaching gymnastics and military drill.

APPENDIX 1.

Instructions issued by the Minister of Education with regard to the improvement of the physique of students:—

When bows and arrows were in use in this country, gymnastics were not neglected, latterly, however, such exercises have been neglected by some, and teachers and students have been inclined to acquire book learning at the expense of athletics. As the first step towards improving the physique of the nation, children in the primary schools should be trained in gymnastics as follows:—

1. Exercises should be selected which make the joints and limbs supple, such as military drill. Children should not be trained in a formal and perfunctory manner. They should not be allowed to get tired by being made to stand, doing nothing, whilst elaborate details of exercises are given out. If children once get into the habit of disliking these exercises, the object of physical training is lost.

2. Children in the advanced course should be trained in military drill and also in gymnastics. They should also be taught war songs.

3. Students should wear, in school, as far as possible, foreign clothes. If this cannot be done the sleeves should be cut in accordance with Western custom.

NAVAL NOTES.

Home. The following are the principal appointments which have been made: Captains—A. L. Cay to "Prince George"; H. A. S. Fyler to "Encounter"; C. H. Morgan to "St. George"; E. R. Pears to "Triumph"; W. R. Hall to "Cornwall"; O. F. Gillett to "Hawke"; R. H. J. Stewart, M.V.O., to "Africa"; F. S. Miller to "Goliath"; W. B. Fawcner to "Venerable"; F. C. D. Sturdee, C.V.O., C.M.G., to "New Zealand."

The following appointments to take effect in March have been announced by the Admiralty:—Admiral Sir A. D. Fanshawe, K.C.B., to be Commander-in-Chief at Portsmouth in succession to Admiral Sir Day Bosanquet, G.C.V.O., K.C.B.

Vice-Admiral Sir W. H. Fawkes, K.C.B., K.C.V.O., to be Commander-in-Chief at Devonport, vice Admiral Sir L. A. Beaumont, K.C.B., K.C.M.G.

Vice-Admiral Sir J. Durnford, K.C.B., D.S.O., to be President of the Royal Naval College at Greenwich, vice Admiral Sir A. D. Fanshawe.

Vice-Admiral the Hon. Sir H. Lambton, K.C.V.O., C.B., to be Commander-in-Chief of the China Station, vice Admiral Sir A. W. Moore, K.C.B., C.M.G.

Vice-Admiral Sir R. Poore, Bart., C.V.O., to be Commander-in-Chief of the Australian Station in place of Vice-Admiral Sir W. H. Fawkes.

The first-class armoured cruiser "Devonshire," from the Second Cruiser Squadron, paid off at Devonport on the 4th ult., and recommissioned on the following day for further service in the same Squadron.

The first-class armoured cruiser "Cornwall" was removed from the Home Fleet on the 1st inst. and is to be fitted out for service as a sea-going ship for naval cadets; she is a sister-ship to the "Cumberland," which is now making its first cruise with cadets.

The first-class armoured cruiser "Aboukir" is being specially fitted up at Malta for the use of H.R.H. the Duke of Connaught, when he pays his official visits to the Mediterranean Stations under his command.

The second-class cruiser "Sappho" was commissioned on the 5th ult. for service in the West Indies, although nominally attached to the Fourth Cruiser Squadron. She left Sheerness on the 13th ult. for Funchal and Barbadoes.

Some important experiments were carried out on the 29th and 30th ult. by ships of the Channel Fleet with the old third-class battleship "Hero," which was moored off the Kentish Knock for the purpose. The two ships selected for the firing were the "Hibernia," flagship of Vice-Admiral Sir R. Custance, K.C.M.G., Second-in-Command of the Channel Fleet, and the "Dominion." Fire was opened at a distance of over 8,000 yards, and the practice made is reported to have been very good; the ship has been much shattered, and rests on the bottom, she having been moored with but little water to spare under her. She was

specially prepared for the experiments, the two 12-inch guns in her turret being left in her; dummy figures were placed in various positions, and a complete fire-control apparatus was fitted in her top. The results of the firing have been kept confidential.

Steam Trials.—The new ocean-going torpedo-boat destroyer "Mohawk," built by Messrs. J. Samuel White and Co. (Limited), East Cowes, Isle of Wight, for the Navy, ran an official trial on the Maplin Mile on Tuesday, November 5th, obtaining a mean speed of 34.3 knots. This is 1.3 knot in excess of the contract speed of 33 knots, which, considering the high basis speed, is a most remarkable result. The oil fuel consumption was very satisfactory. The following are the principal particulars of the vessel:—Length, 270 ft.; displacement, 800 tons; armament, three 12-pounder Q.F. guns, two 18-inch revolving torpedo tubes; speed to be maintained on a six hours' full-power trial, 33 knots; radius of action at economical speed, 1,500 nautical miles. The vessel is propelled by turbine machinery, comprising five turbines (three ahead and two astern), driving three shafts and propellers, built by Messrs. J. S. White and Co. (Limited), under licence from the Parsons Marine Steam Turbine Company (Limited), the power of the machinery being about 14,500 I.H.P. The steam is supplied by six water-tube boilers, each of about 2,400-H.P., of the White-Forster type, made by the same firm. These boilers are fired by liquid fuel on a system which has been experimented with successfully by the Admiralty for some years. No coal storage is provided in the vessel, and she will rely entirely on the liquid fuel installation. The official speed trial took place on the 15th ult., and was very successful. The mean speed obtained on the mile was 34.5 knots, and on a continuous six hours' run 34.25 knots. This constituted, it is said, a record for any destroyer afloat.

The "Tartar," one of the new class of 33-knot turbine destroyers recently completed for the British Navy by Messrs. John I. Thornycroft and Co. (Ltd.), of Southampton, ran a successful contractors' trial at Stokes Bay on the Admiralty course on the 20th ult., when the mean speed obtained was, as the result of six runs, 32.122 knots without the vessel being pressed in any way. The power is produced by turbines built by Messrs. Thornycroft, arranged on three shafts and developing approximately 14,000 I.H.P. together. The high-pressure turbine on centre shaft exhausts into the low-pressure turbines on the wing shafts. Forward of the low-pressure turbines is a high-pressure and low-pressure cruising turbine, each driving a shaft with one propeller. Steam is supplied by six water tube boilers of the latest Admiralty type built by Messrs. Thornycroft, which use oil fuel exclusively and work at 220lb. per square inch. The vessel is of greater beam than others of the same class. Her shape follows generally the lines of the earlier destroyers by the same firm, a prominent feature of which is the turtle deck instead of the raised forecastle deck generally adopted for vessels of this size. The "Tartar" has also considerably greater freeboard than the other 33-knot destroyers.—*Times*.

Battle Practice of the Fleet.—Modifications in the battle practice of the fleet have been approved to be carried out in 1908. The firing will be from both sides of the ship, half the authorised number of rounds being allotted to each ship. A towing target is to be used if available, and a scheme of points will be arranged by which increasing values will be given to hits made by the more important guns. The order of merit of each ship will be determined by the ratio of the points obtained by her to the possible maximum of her armament.

Launch. — The new first-class battle-ship "Superb," one of the improved "Dreadnoughts," and a sister-ship to the "Temeraire" and "Bellerophon," launched earlier in the year, was successfully launched on the 7th ult. from the Elswick Yard, Newcastle-on-Tyne, and is the largest ship as yet constructed by that well-known firm. She has a displacement of 18,600 tons, a length of 490 feet, beam 82 feet, and 27 feet draught. Her engines, which are being constructed by the Wallsend Slipway and Engineering Co., Ltd., Newcastle-upon-Tyne, will indicate 23,000-H.P., and propel the vessel at a speed of 21 knots, while she will have a normal coal supply of 900 tons, with bunker capacity for a much larger amount. The keel of the vessel was laid as recently as February last, and as the launching weight will be about 9,000 tons, her construction probably constitutes a record for vessels of this class by private firms.

The following are the principal promotions and appointments which have been made: Vice-Admiral—L. Barnaud to be President of the *Comité Technique de la Marine*. Rear-Admirals—J. Bellue to be a member of the *Conseil Supérieur de la Marine*, member of the *Commission des Invalides de la Marine*, member of the *Commission Mixte des Travaux Publics*, and President of the *Section des Bâtiments de défense*; P. Auvert to be President of the *Section du Matériel et des Effectifs* and member of the *Conseil Supérieur de la Marine*; M. Kiésel to be President of the *Section des Bâtiments de Haute Mer*; L. J. Pivet to be Major-General de la Marine at Brest; E. M. J. Lamson to be Chief of the Staff of the 1st Arrondissement (Cherbourg). Capitaines de Vaisseau—C. E. Favereau to "République"; G. L. Prat to "Suffren"; P. P. Thibault to "D'Entrecasteaux"; A. M. Ytier to "Desaix"; L. H. Dufaure de Lajarte to "Victor Hugo." Capitaines de Frégate—C. L. Badin to "Alouette" and Command of Defence Flotilla at Cap Saint Jacques, Saigon; F. M. Costet to "Surcouf."

General.—The 24 hours' trial at Cherbourg of the coast-defence battle-ship "Requin" has been delayed by defects in her machinery.

The protected cruiser "Friant," in the 2nd category of the Reserve at Cherbourg, having been reboilered, has been undergoing her trials, and she will shortly be commissioned for service with the fleet. Though built in 1893, she is still an efficient cruiser.

It is reported from Toulon that the estimate for repairing the first-class battle-ship "Iéna" is no less than ten millions of francs (£400,000). Under these circumstances M. Thomson, Minister of Marine, has decided she is not worth repairing, and she will be used if possible for trials with torpedoes.

The new destroyer "Cognée" was launched at Toulon on the 26th November. Her dimensions are: Tonnage, 336; H.P., 6,800; speed, 28 knots; length, 58-m. (190 feet); beam, 6-20-m. (20 feet); draught, 2-98-m. (9 feet). She will carry one 65-m. (2-5-inch) and six 47-mm. (1-85-inch) guns, and will have two torpedo-tubes.

Collision Between Submarines.—Two submarines, the "Bonite" and "Souffleur," were in collision off Toulon, three miles south of C. Brun, on the 23rd ult. It appears that, with two other vessels of the class, they were ordered to make an attack on the Mediterranean Squadron, which was returning to harbour. The submarines were to move about in

certain mapped-out sectors, the "Bonite" and "Souffleur" manœuvring in adjoining sectors, when the "Bonite" strayed from its allotted station and came up with the "Souffleur." Both vessels were moving at a speed, fortunately, of only about four knots, and were looking out for the "Jauréguiberry," the ship they were ordered to attack. Neither saw the other until too late, and they came into collision. The "Bonite" struck the "Souffleur" on the port side, breaking the diving rudder, and then collided with the conning tower or kiosque, breaking the scuttle so that water began to come in. Orders were at once given to cut loose the safety weights, close the water-tight compartments, and rise to the surface. In less than a minute both submarines had reached the surface, when it was found that, fortunately, they could each keep afloat. The conning towers were opened, and then a second accident occurred, for the commander of the "Bonite," believing that the "Souffleur" was helpless, approached her too closely in order to render assistance, and again fouled her, but fortunately without doing more damage, and both boats returned safely to Toulon, where they were at once placed in dry dock. The "Bonite's" injuries were found to be very slight, but the "Souffleur's" will take some little time to make good. The "Souffleur's" rudder broke the force of the collision, otherwise she must have gone to the bottom, and could not have been raised, as the water on the spot was between forty and fifty fathoms deep. As it was, the "Souffleur's" damages caused an extra pressure equal to a quarter of a ton, and made her descend three feet before the safety weights could be released. Rear-Admiral Campion has ordered an inquiry.

Bizerta.—Rear-Admiral Baëhme, the new senior naval officer at Bizerta, is reported to be actively pushing on the completion of the arsenal at Sidi Abdulla, on which work was suspended during M. Pelletan's régime. The intention is to make Bizerta a first-class naval arsenal capable of undertaking repairs of the largest ships, and defended from attack both by land and sea. The Regency of Tunis having been empowered to negotiate a loan of 75 million francs (£3,000,000) a contribution of five millions of this sum has been demanded by the Ministry of War and Marine, namely 2,450,000 francs (£98,000) for constructing a fort on the heights of Dekounia, south of the Lake of Bizerta, and 2,550,000 francs (£102,000) for repairs to the mole and jetties, and for deepening the channel.

A New Luminous Shell.—There have lately been carried out at Lorient, under the supervision of the Artillery Commission at Gâvres, a series of trials, which have been kept secret, of a new shell possessing a special feature.

The shell in question has the property of throwing out a luminous ray when it strikes its object, and it seems likely that the invention may prove of great use to the Navy. It has a calibre of 65-mm. (2·5-inch), and, thanks to its luminous power, is intended to regulate, especially at night time, the fire of ships of war. It is hoped that the gunners will be able, by means of the flame that escapes from the base of this projectile, to immediately correct their range, whether their fire is directed against a ship or coast defences, and rapidly hit one or the other in comparative safety, since the enemy would have no similar invention to oppose it.

These trials, which have been ordered by the Minister of Marine, are being carried on outside the outer channels to the port of Lorient, the firing being against targets anchored at different ranges up to about 3,000 yards, their position being shown by means of the electric search-lights from the Gâvres forts.

The luminous shells are of cast iron and charged with powder under the same conditions as the regulation shells issued to the fleet. The principle of their illuminating power lies in the introduction into the shell of phosphorus of calcium, which bursts into flame on coming into contact with sea-water.

The New Port at St. Nazaire.—On the 23rd of September, the new entrance to the inner harbour of St. Nazaire was formally inaugurated. It has cost 20 million francs (£800,000), was begun in 1886, and has been completed in something over 11 years; in fact, for practical purposes it was concluded somewhat earlier, as on 30th June the new battle-ship "Liberté," a vessel of nearly 15,000 tons displacement, was able to pass through when leaving the harbour for Brest.

This work had become a matter of the first importance, in consequence of the increasing number of large steamers which now frequent the port, and of the growing demands of the Navy, with the result that it will now take its place as a base of the first rank on the Atlantic coast for the fleet.

The new entrance allows of vessels over 700 feet in length, and 97 feet beam, to pass through at any time, the depth of water in the locks and channel, which are cut through rock, being 26 feet over low water. The entrance lock is approached by a channel, which is 1,640 feet in length, with a breadth of 870 feet, sheltered by two jetties, which are carried to the open sea, and are 390 feet apart. Adjoining the entrance is a quay for the use of large steamers, which have only passengers and a small amount of cargo to disembark. This quay, which is a little over 800 feet long, and 90 feet wide, is amply provided with steam cranes, while the railway in addition runs on to it.

The approaches to St. Nazaire are comparatively easy, as navigators have only to make Belle-Isle, and when once that prominent island is picked up, a straight course can be shaped for the channel, aided at night by the three powerful lights of Le Four, La Bouche, and Les Charpentiers; a channel, five miles long, leads first into the outer roads and from thence into the inner. Both roadsteads have a sufficient depth of water now for large ships with good holding ground.

Reorganisation of the Ecole Navale.—An important *projet de loi* for the reorganisation of the "Ecole Navale" is being considered by the Conseil Supérieur de la Marine, the proposals in some way following the reforms effected regarding the entry of officers in our Navy, the object being the same, namely, to assure unity of origin for the different branches; the *projet de loi* also provides for the promotion from the ranks of a certain number of petty officers and seamen.

The different branches affected by the proposal are, "Officiers de marine, officiers mécaniciens, ingénieurs de génie maritime, ingénieurs hydrographes, and ingénieurs d'artillerie."

The entry of candidates for this single naval school of the future, whose creation is asked for by the *projet de loi*, will be by competitive examination at a minimum age of 18, and all candidates will be required to have served one year at sea before the mast. The period of instruc-

France. tion at the "Ecole Navale" will be two years, at the expiration of which the pupils will be rated aspirants corresponding to the rank of sub-lieutenant.

The new aspirants will then embark for a year in a special vessel, "Ecole d'application," and at the conclusion of this year afloat they will go for six months to one of the torpedo flotillas.

After this, specialisation of the young officers will take place, and examination will be held for entry into the three "Corps d'ingénieurs," the number of vacancies being fixed each year by the Minister of Marine; those then admitted are to complete their instruction in one of the sea-going squadrons or the vessels attached to the school of gunnery, till they have completed two years in the rank of aspirant, they are then to be appointed "ingénieurs de 2me classe" (lieutenants), and will be sent to special "Ecoles d'application du génie maritime et d'artillerie."

Aspirants not admitted into the corps d'ingénieurs are classed by order of merit, and according to their position on the list they are to be allowed to select which of the two corps, officiers de marine or officiers mécaniciens, they wish to enter; those selecting the corps of officiers de marine will be sent for six months' duty with the battalion of "Apprentis fusiliers," the others will be sent for a six months' practical course to "Ecole des élèves mécaniciens."

Recruiting of officers from the ranks will take place in two ways:—

1. By competition between "Officiers mariniens, quartiers-maitres, and seamen with not less than four years' service and two years' sea service, successful candidates being sent for two years to the "Ecole des élèves officiers."
2. By direct examination of men holding the ratings of "premiers maitres de manœuvre, de canonage, de mousqueterie, de timonerie, and maitres torpilleurs," having not less than two years' sea-service, those who pass the examination being at once promoted "ensigns."

The number admitted from the ranks to the "Ecole des élèves officiers" is to be one-third of the total number of *élèves* admitted to the "Ecole navale" during the year; the number of these promoted "ensigns" is not to exceed half the number of *élèves* admitted during the year to the "Ecole des élèves officiers."

As regards recruiting from the ranks of officiers mécaniciens, the number of vacancies assigned to "Sous-officiers mécaniciens" is to be double the number assigned to aspirants from the "Ecole navale."

The "Ecole navale" is to be installed on shore at one of the naval ports, and certain vessels are to be attached to allow the *élèves* to obtain practical instruction at sea.—*Le Temps, La Vie Maritime, and Le Moniteur de la Flotte.*

Russia. *Report of the proceedings at the Court-Martial on Admiral Rojdestvensky and the Officers of the "Bedovy."*—

The accompanying report of the proceedings at the trial of Admiral Rojdestvensky and the officers of the Russian destroyer "Bedovy" has been translated from the *Novoe Vremya* by Captain G. A. West, late R.A.:—

"THE Court-Martial for the trial of the officers concerned in the surrender of the torpedo-boat "Bedovy" after the battle of Tsushima, which lately assembled at Cronstadt, consisted of the President, Lieut.-General Izvekov, five Admirals and a Colonel.

The accused were Vice-Admiral Rojdestvensky, First Russia. Captain Klapey de Kolong (Admiral Rojdestvensky's Flag Captain), Colonel Philipovsky, Second Captain Baranov (commanding the "Bedovy"), and other junior officers on this torpedo-boat, each of which were defended by a different officer or barrister, one Sub-Lieutenant having for defender his own father, a well-known lawyer. Admiral Rojdestvensky elected to defend himself. The witnesses consisted of eight officers, one student and five petty officers and sailors. All the accused pleaded "Not guilty" with the exception of Admiral Rojdestvensky and two Lieutenants, whilst one Lieutenant said he did not know whether he was guilty or not, and asked the Court to decide this difficult question for him.

THE CHARGE.

On 15th May, 1905, at about 4 p.m., the torpedo-boat "Bedovy," when overtaken by the Japanese torpedo-boat "Sazanami" lowered her flag before the enemy without fighting and was captured.

The evidence showed that the surrender of the "Bedovy" took place under the following circumstances:

On the 14th May, 1905, about 2 p.m., during the battle of Tsushima, the flag-ship, "Kniaz Suvorov," left the line of battle, its steering gear being out of action. About 5.30 p.m. this war-ship was enveloped in flames and heeled considerably to port.

The Commander of the torpedo-boat "Buiny" (who had already, under a heavy fire from the enemy, picked up over 200 of the crew of the "Oslyaba," when this warship capsized), went to the windward side of the "Suvorov" and took on board Admiral Rojdestvensky, dangerously wounded, Flag Captain Klapey de Kolong, Colonel Philipovsky, and other members of the staff, also some of the crew.

The Commander of the "Buiny," seeing that the heavy swell threatened to smash up his boat, hastened to leave the ironclad's side. Two Lieutenants and a Sub-Lieutenant, although they had every chance of saving their lives, refused to go on board the torpedo-boat, and, remaining to duty, together with the other officers and crew of the "Suvorov," perished like heroes.

The "Buiny" having already one hole in the bows, hurried out of range of the enemy's fire, and, after about an hour, caught up the Russian cruiser squadron.

By order of Flag Captain Klapey de Kolong, the Commander of the "Buiny" signalled, "The Admiral transfers the command to Admiral Nebogatoff," and by semaphore instructed the torpedo-boat "Bezuprechni" to approach the flag-ship "Nicholas I." and inform Admiral Nebogatoff that he had succeeded to the command of the whole fleet.

First aid was in the meantime administered to Admiral Rojdestvensky and the other wounded by Surgeon Koodinov. The latter thought the Admiral's condition very grave, and even doubted if he would live. There was a large starred wound on his forehead, which bled profusely, another wound under the right shoulder-blade, also bleeding much, on the right hip a piece of flesh was torn off, and on the left heel blood was spurting from a torn artery. When asked, "How do you feel, Excellency?" the Admiral asked, "How is the 'Suvorov'?" and added, "For God's sake tell them not to lower the flag." On learning that all was destroyed on the "Suvorov," and that there was even nothing left to hoist a flag on, the Admiral exclaimed in anger, "Let them do it somehow, if only on a boat's

mast or boat-hook." Whilst he was being bandaged the **Russia.** Admiral conversed with the Commander and other officers who approached him, and asked about the course, and said it should be shaped for Vladivostok.

The "Buiny" was with the cruisers "Dmitry Donsky," "Svetlana," "Izumrud," and "Vladimir Monomach," but afterwards stopped on account of damage to its machinery. About 3 a.m. the Commander of the "Buiny," having become assured that Vladivostok could not be reached and that the torpedo-boat was in serious danger, owing to the enemy pursuing the squadron, went to consult with the Flag-Captain in the cabin about his further action. After waking the latter up he proposed that they should land on the Japanese coast and blow up the torpedo-boat, which was unfit for the sea. Captain Kolong saw no other course and consented to this plan. Colonel Philipovsky (Admiral Rojdestvensky's Navigating Officer), who was sleeping by the side of Kolong, woke up at this moment and joined in the conversation. He said that in order to save the Admiral's life, a fight should not be engaged in, in case the enemy were met with. The Flag-Captain himself hesitated to take such a decision, on which the Commander proposed that the Admiral should be consulted, and he and Colonel Philipovsky thereupon went into the Admiral's cabin, Kolong remaining at the door owing to the narrow space. The Commander, taking the Admiral by the arm, woke him out of his half-conscious condition, and Philipovsky started to explain to him the necessity there was for surrender, in case the enemy were met. The Admiral, in spite of his weakness and nervous prostration, had strength enough to answer that they should not allow themselves to be handicapped by his being there, and should act as if he was not on the torpedo-boat at all. On going out of the cabin Philipovsky continued to insist on the correctness of his view and the necessity to surrender to save the Admiral's life. Surgeon Koodinov, on the other hand, testified that the Admiral was apparently conscious until midnight, but afterwards raved and did not answer questions.

Shortly after the conversation already mentioned, Captain Kolong ordered Lieutenant Bourm to find a sheet and bring it to the Commander (Captain Kolomatezev), in order to substitute it for the flag on the enemy's appearance. Bourm complied with this order, but Captain Kolomatezev threw away the sheet and said, "A fine tragic-comic situation this! I, the Commander of a war-ship, give my Admiral up as a prisoner? Never!"

At dawn on the 15th May, the cruiser "Dmitry Donsky" and the torpedo-boats "Bedovy" and "Grozni" showed on the horizon, and at first taking the "Buiny" for an enemy's ship, altered their course. The Commander of the latter made himself known by telegraph, and, seeing that the "Dmitry Donsky" and other ships were approaching, decided to inform the Admiral.

The Admiral, on learning that coal was running out and that the machinery was damaged, desired to be transferred to the "Bedovy," and this was signalled by order of the Flag-Captain both to the "Bedovy" and "Dmitry Donsky."

At 9 a.m. a cutter from the latter came alongside the "Buiny," on which Admiral Rojdestvensky and the officers of his staff were transferred to the "Bedovy." The Admiral said "Good morning!" to the crew and her Commander, 2nd Captain Baranov, and, according to the evidence of a petty officer on board the "Bedovy," who was acting as signaller, enquired whether there was a white flag on the torpedo-boat. A junior surgeon from the "Dmitry Donsky" attended the Admiral henceforward and remained with him nearly the whole time, until the surrender. He found the Admiral in

a conscious state, but his wounds were serious and his situation grave. He often lapsed into drowsiness, and was evidently not aware of what was going on around him. The "Bedovy," after taking the Admiral on board, signalled, "The "Grozni" will follow me," and by semaphore, "Admiral Rojdestvensky is on board wounded, also the greater part of the staff; we are going to Vladivostok if coal lasts, otherwise to Posietie; steer so that your smoke does not fall on us."

The "Grozni" followed in the wake of the "Bedovy," and both steered for Vladivostok. At first all four fires were used, but afterwards only two, making not more than twelve knots. The crew were surprised at the order to reduce steam, but Staff-Captain Ilutovitch, the engineer officer, explained that this measure was necessitated by insufficiency of coal. Long before the appearance of the hostile torpedo-boats, it had been rumoured on board that the Admiral had resolved not to fight, but on meeting the enemy, to surrender. This rumour owed its origin to the conversation amongst the officers, who seemed to care nothing that the crew overheard them. An engineer declared that he heard Captain Baranov say that if the Japanese overtook the torpedo-boat he would surrender.

About 10 o'clock a.m. the officer of the watch, Sub-Lieutenant O'Brien de Lassey, ordered the signaller to prepare a white flag from a table-napkin out of the mess-room. "Impossible that we are going to surrender," said the signal'er. "The Admiral ordered that it should be prepared in any case," answered O'Brien de Lassey.

The log of the torpedo-boat "Grozni" records that about 1 p.m., when in sight of the island Dajelette, the smoke of two ships was seen on the horizon, astern on the port side, and this was immediately reported to the Commander of the "Bedovy" and the Flag-Captain, who, with several other officers, went up on the bridge. Various suppositions prevailed; some said that they were our remaining ships; others affirmed they were Japanese. Many thought that speed should be increased and that all four fires should be used; others thought it better to wait.

When the silhouettes of two Japanese torpedo-boats were clearly discernible, the crew of the "Bedovy," without any order, went to their posts at the guns and evidently expected a fight. The officers consulted about something on the bridge. Although speed had been increased, an order was given to reduce it. On the "Grozni" they were sounding to quarters. The latter ship approached the "Bedovy" and signalled, "Japanese torpedo-boats are pursuing, what are we to do?" "What speed are you capable of?" asked the "Bedovy." "22 knots," answered the "Grozni," and thereupon received orders to go to Vladivostok. The Captain of the "Grozni," surprised at such a wholly unjustifiable order, asked by semaphore, "Why leave without fighting?" to which no answer was given. On the "Bedovy," Sub-Lieutenant O'Brien de Lassey had already ordered a signaller to arrange the white flag for hoisting, and the Commander with the Flag-Captain were giving directions to turn the crew from the guns. The enemy was close. All the officers of the "Bedovy" were on deck, with the exception of the Admiral. According to the evidence of a sailor, who was in the cabin, he saw 2nd-Captain Baranov approach the Admiral and heard him ask, "Do you order, your Excellency, that fire should be opened; the enemy's torpedo-boats are getting near," to which the Admiral answered, "It is not necessary to open fire; let us give ourselves up as prisoners, but semaphore to the "Grozni" to go to Vladivostok." This statement is, however, not borne out by the accounts of other witnesses.

After the first shot from the enemy at 3.25 p.m., the "Bedovy" stopped her engines, and under orders from Flag-Captain Kolong signalled, "I have seriously wounded on board." At the same time the Commander ordered the stern flag to be lowered and the white and Red Cross flags hoisted.

The "Grozni," seeing that the "Bedovy" had surrendered, put on full steam, and going some distance off, engaged the enemy's torpedo-boat (of the type "Kagero"), which was pursuing, and, according to the report of the Grozni's Commander and the entries in the log-book, in about two hours after the fight commenced succeeded in sinking it.

According to the evidence of a messenger, who, at the moment the engines stopped, was standing not far from the Captain's cabin, the Admiral, seeing that the engines had stopped, said, "Put on full steam or they will sink us," and he (the messenger) hastened to inform him that the white and Red Cross flags had already been hoisted.

The crew were in great commotion, being mad to fire, and even layed the guns, grumbling that they were not allowed to fight an enemy of equal strength. The officers quieted them, saying that the crew would not be answerable, and the Flag-Captain, Colonel Philipovsky and Lieutenant Leonteff repeated continually that the life of the Admiral was more valuable than the torpedo-boat. Only one amongst the officers was indignant at the surrender, namely, the engineer officer Staff-Captain Ilutovitch, who had even ordered the Chief Engineer to prepare the torpedo-boat for scuttling. The Japanese torpedo-boat (the "Sazanami"), after firing a few shots, which did no damage, put off a boat and sent an officer and armed party on board the "Bedovy." The Japanese officer entered into conversation with Flag-Captain Kolong. A student translated these remarks into English. Captain Kolong hastened to explain that it was not a torpedo-boat, but a hospital ship, and that it might be dangerous to transfer the Admiral to another ship, owing to his precarious condition. The Japanese officer apparently understood very little. He ordered the Marconi apparatus to be destroyed, and saw that the flag of the Rising Sun was substituted for the flag of St. Andrew. On this point the evidence differed considerably. Captain Baranov affirmed that he never saw an actual Japanese flag on his torpedo-boat even in Sasebo. It was impossible not to smile at the announcement of a Lieutenant that a Japanese flag was hoisted, but a small, tiny one.

The Admiral and Staff remained on the "Bedovy," and the latter's officers and part of the crew were transferred on to the "Sazanami," which took the "Bedovy" in tow. According to the evidence of a number of witnesses, including the Boatswain of the "Bedovy," the crew were indignant, thinking such a surrender an unheard-of disgrace for Russia. At the time of the surrender the weather was clear and the sea quiet, and no hostile ships were in sight. The torpedo-boat "Bedovy" had received no damage in the fight of the previous day, and was consequently in perfect condition.

Admiral Rojdestvensky, on being asked whether he was guilty, declared that he considered himself the chief culprit. In a statement he made to the Court, he said that in the orders he gave as Admiral-in-Chief of the squadron before the fight, there were definite instructions as to the course to be pursued, and torpedo-boats were detailed for the transfer of the Admiral and Staff from the damaged warships to serviceable ones, but it was not stated that if the Admiral himself became incapacitated, he was not to be transferred to another ship, and consequently not to a torpedo-boat either. "If there had not been such an omission in my

orders," said the Admiral, "the Flag-Captain would, without loss of time, have sent the torpedo-boat nearest to the "Suvorov" to the squadron, with the announcement of the transfer of command, or himself, with the other members of the Staff still fit for duty, would have gone to the ship of the next senior Admiral and would have left me on the "Suvorov." But the order did not foresee such a combination of disasters, viz.: the flagship unsteerable and the Admiral himself incapacitated from wounds. The Flag-Captain, guided by my order, thought it his duty to transfer me and the officers of my Staff on to the torpedo-boat. The "Suvorov" was burning, and neither on her or the torpedo-boat were there any boats. Tongues of flame prevented the torpedo-boat from approaching on the leeward side, and the Flag-Captain decided to order the torpedo-boat to the windward side, where there was a heavy swell. Here the gun-muzzles protruding from the ports might have easily made holes of a dangerous nature in the side of the torpedo-boat. The sight was a demoralising one for those who witnessed it. The torpedo-boat "Buiny," at the risk of being capsized and drowning not only her own crew, but 200 men of the ironclad "Oslyaba," whom she had pulled out of the water under the enemy's fire, came alongside the "Suvorov" for the one purpose of taking off the Commander of the squadron, who had fallen unconscious. This sight put considerations about the transfer of the flag into the second place. The minds of all were filled with the idea that the senior officers were leaving a doomed vessel; that they were saving the valuable life of a fallen Admiral, risking at the same time hundreds of other lives. Those present, crushed by this demoralising impression, did not understand why three of the officers of the war-ship "Kniaz Suvorov," who were not members of the Staff, refused to leave their ship together with the Admiral, whom they were transferring.

"The officers of the Staff could not but be distracted by such an appalling spectacle. In superintending the transfer of their chief they clearly understood that it was not a question of the transfer of the flag, and their brains feverishly searched for a justification of their part in leaving a ship in extremity. So that, although fulfilling my orders to the letter, the Staff felt themselves dispirited. And then it was that some of the Staff seized on an idea, which to their strained minds appeared the only one capable of stifling the reproaches of conscience. The life of the Admiral must be saved! The Staff should take the necessary measures! Thus probably it was that the idea first struck one of them, and it was conformed to as the only way out of a false position, created by insufficient instructions. I repeat, that if in my orders it had been clearly stated that the Admiral, if incapacitated, should share the fate of the rest of the *personnel*, there would never have been this sad page in the annals of the Battle of Tsushima. The incompleteness of the orders does not, however, clear me of blame before my Emperor and country, or before my comrades, who, with myself, are being tried for the disgraceful surrender of the "Bedovy."

Admiral Rojdestvensky then told the Court that he recovered perfect consciousness whilst on the torpedo-boat "Buiny," and never lost it afterwards, and went on to say: "Thus, being in perfect mental health I answered those who came to me to seek moral support not by an energetic reminder of the obligations of honour, but by a mere commonplace. I myself have no recollection of this nocturnal interview. Undoubtedly the words introduced in the evidence as spoken by me might have been said with a force of spirit and so commandingly as to crush all proposals based on the importance of saving my life. But apparently I answered so nonchalantly that

the unfortunate idea still remained. In my answer was only recognised an endeavour to turn the responsibility from myself; in other words, indirect approval of the plan by which my valuable life was to be preserved. This is made fully apparent by the evidence of the Flag-Captain that the Commander of the "Buiny," on hearing my answer, asked for a written order from the Staff, not to fight in case of falling in with the enemy." Neither did the Admiral remember the visit of Lieutenant Leonteff and another Lieutenant when the enemy were near, but he pointed to the unimportance of the slight differences in the evidence against him. "One Lieutenant said I ordered the surrender by a side movement of the head; the other remembers that I nodded my head." He also dwelt on the demoralising effect which the sight of their fallen Admiral must have had on the officers and crews of both torpedo-boats, and of the probable rumour there must have been as to his having resolved on surrender in case of attack, but he did not remember that on being transferred to the "Bedovy" he asked Captain Baranov whether he had got a white flag ready, although he did not refute this evidence of the signallers as impossible.

The Admiral then recapitulated the main points of his evidence:—

1. The insufficiency of his orders placed the Staff in a false position.
2. His answer to the Commander of the "Buiny" inspired all with the necessity of surrender in case of attack.
3. His nod of the head to the same effect when the enemy were actually approaching.

And concluded:—

"In view of all the above, I repeat that no one but myself is guilty of the surrender without fighting of the "Bedovy" to the Japanese torpedo-boat."

Captain Baranov, in his defence, strove to show that if he had not been interfered with in the command (of the "Bedovy") he would never have surrendered the torpedo-boat without fighting. Besides, he did not surrender but handed over. . . . On the President remarking that this came to the same thing, Captain Baranov very hotly exclaimed that it was on the contrary, a great difference; it was not a torpedo-boat fully armed, equipped and ammunitioned that was handed over, but a hospital ship. . . . Whether the Japanese grasped this slight difference is, of course, unknown, but it is probable that they did not. At least according to the evidence of the younger ship's officers the Japanese officer, who boarded the "Bedovy" with an armed party, acted exactly as if he had taken possession of a war-ship, and even required the officers to stand before him in line for convenience of enumeration. . . .

The evidence of Captain Baranov was further remarkable. He said he had ordered all white flags on his torpedo-boat to be destroyed, even signal flags of a white colour. This statement as to his hatred of white flags compares singularly with the statement of Sub-Lieutenant O'Brien de Lassey, who, interrupting with his young voice, exclaimed that when he was ordered by his commander and Colonel Philipovsky to get a parliamentary flag ready, and asked whether he should use a napkin or a sheet, Captain Baranov, for some reason or other, preferred a table-cloth!

According to the evidence of several of the engine-room hands, the torpedo-boat had, long before the surrender (24 hours before) been prepared

Russia. for scuttling, the more so as this was very easy, but when the white flag was raised nothing was done.

Captain Kolong (Flag-Captain) based his defence on his being on the "Bedovy" in the capacity of a wounded officer from the captured war-ship, and said that owing to the state of his health he could not be responsibly connected with what was passing.

The President proposed that the Court be adjourned to consider the question of Captain Kolong's state of mind. The latter's counsel, on the other hand, desired that the charge against his client should be dealt with separately, to which the Prosecutor objected. After a ten minutes' adjournment the Court decided to continue the hearing.

Of particular interest was the evidence of 2nd-Captain Andrijevsky, Commander of the "Grozni," about the fight with the Japanese torpedo-boat of the type "Kagero." The defence asked whether this Japanese boat was not present at the inspection of the Japanese fleet in Tokyo at the conclusion of the war, according to the list published. On this point he answered that the Japanese torpedo-boat lurched considerably, her bows were immersed and the left screw was visible, but no one actually saw her capsize, he (Captain Andrijevsky) being unable to see owing to blood running from a wound in the eye.

The evidence of the medical expert, a member of the lunacy section of the Naval Hospital, who was called with regard to Captain Kolong's health, was to the following effect:—"After such a long and difficult cruise, it would be easy for a man to be in a weak mental state, even without any special shock. Wounds in the head have more effect than anything else on the psychological condition; nervous natures easily give way to strain; it very frequently happens that a man performs a number of customary actions, and is in reality not in a normal state, and so on." The only valuable communication he made was with regard to the statement that, for a month before the fight, Captain Kolong, whose constitution was in general a very nervous one, had a slight brain disturbance, and as result of this his left leg was in a slightly paralytic condition. He, however, would not quite say that Captain Kolong, at the time of the surrender, was not responsible for his actions, but only regretted that old, out-of-date regulations did not sufficiently deal with the matter of the lesser mental troubles.

Colonel Philipovsky (Navigating Officer) said that he felt overcome by the gases and was in such a cheap abnormal condition that whatever he may have said or done was done mechanically, unconsciously, and without understanding of what was going on.

The general impression which his evidence, as well as Captain Kolong's, left was that neither one nor the other clearly remembered their part, during the decisive moments of the surrender. He well remembered, however, taking the "Bedovy's" bearings at noon and having informed the Admiral of their position, and received instructions from him as to the Squadron's entering Vladivostok Harbour, and the position of the ships when there.

It may here be mentioned that there was not among the witnesses, officers or men, one who did not repeat Colonel Philipovsky's phrase, "The life of the Admiral is more valuable than a torpedo-boat." On this the *Novoe Vremya* somewhat sarcastically remarks, "Is the difference perhaps material that as stated by some of the lower ranks, 'Colonel Philipovsky valued the Admiral's life above two torpedo-boats?'"

Lieutenant Leonteff's counsel pointed out that the evidence of the witnesses differed as to his direct participation in raising the white flag and lowering the Russian one, and that this being so, none of this evidence was credible. He also urged on his behalf that he came from a soldier

Russia, family, being one of three brothers, who had distinguished themselves in the war, one having been seriously wounded on the "Czarewitch," and the other now serving in the Manchurian army.

(To be continued.)

MILITARY NOTES.

Home. The following are the principal appointments which have been made:—

Field-Marshal Sir H. E. Wood, V.C., G.C.B., G.C.M.G., to be Colonel of the Royal Horse Guards.

Lieut.-Generals—Sir R. McG. Stewart, K.C.B., to be Lieutenant of the Tower of London. H. F. Grant, C.B., to be G.O.C.-in-Chief at Malta. Sir H. T. Hildyard, K.C.B., Commanding-in-Chief in South Africa, to be General. Sir L. J. Oliphant, K.C.V.O., C.B., to be General Officer Commanding-in-Chief, Northern Command.

Major-Generals—Sir E. T. H. Hutton, K.C.M.G., C.B., to be Lieut.-General. D. Haig, C.V.O., C.B., from Director of Military Training, to be Director of Staff Duties at Headquarters.

Colonels—T. D. Foster, M.V.O., to be an A.Q.M.G. R. L. Payne, C.B., D.S.O., Commanding 16th Infantry Brigade, to be Major-General. R. N. R. Reade, from h.p., to be an A.A. and Q.M.G. A. J. Murray, C.V.O., C.B., D.S.O., from a Brigadier-General, General Staff, to be Director of Military Training at Headquarters, retaining the temporary rank of Brigadier-General whilst so employed.

The Territorial Force.—The following two leaflets on this subject have been recently issued by order of the Army Council.

LEAFLET No. 1.

Its Organisation and the Principles on which it is based.

The Territorial Force is authorised by the Territorial and Reserve Forces Act, 1907. This Act provides the necessary constitutional authority, by which this force takes its place as an organised force of the Crown, commanded and trained by the military authorities, raised and administered by the County Associations. The Act also prescribes the conditions of enlistment, service, and discharge, regulates the periods of training, and authorises, subject to the sanction of Parliament, the embodiment of the Force when the Army Reserves are called out on permanent service.

The Territorial Force, as regards the conditions of service, is not dissimilar in its principles to the Volunteer Force. Enlistment into it is purely voluntary, and no Territorial soldier can ever be called upon to serve out of the United Kingdom, in peace or in war, against his will. He will be enlisted in the same manner as the Regular soldier, for a period not exceeding four years; but this will not, in peace, prevent his obtaining his discharge, by giving the notice required by the Act, by paying, where it is just that he should recoup the Association for the expenditure upon him, a sum the extreme limit of which is fixed at £5,

and delivering up his arms, etc., in good order to the County Home Association. The Associations, however, have full power to dispense wholly or in part with these obligations.

Certain provisions have been made in the Act which will enable a higher measure of efficiency to be attained in peace and an organised force to be produced in war. The Territorial officer will be freed from financial responsibility. He will, therefore, in future be chosen with sole regard to his qualifications for command.

The Territorial soldier will have an opportunity of serving in a unit of any arm or department, and he can select, if he wishes, some technical branch akin to his calling in civil life (Royal Engineers, Army Service Corps, Royal Army Medical Corps, etc.). The effect of this, in opening a wider field of selection, should be to greatly increase the efficiency of the force.

The organisation of the Territorial Force is an important feature of the change. In war, numbers without organisation are of little value. Instead of being, as the Volunteer Force is now, a fortuitous collection of units, representing but few of the arms and departments of an Army, it will be organised upon the same basis as the Regular Force.

The organisation will be in divisions. Experience may suggest changes which are desirable in the interests of the force, but the object kept in view is to provide a similar organisation for both the Regular and Territorial Forces. At the same time, it is recognised that its attainment may be the work of years.

The Army will thus be formed into two parts :—

1. The Regular Force, which, supplemented by the Special Reservists authorised by the Act, forms the divisions for service overseas.
2. The Territorial Force, similarly organised in divisions, primarily to secure the Kingdom from invasion, and also providing a means by which the men who form it may be not only trained but organised for war, and which, with the consent of each member, may in time of need be available for the expansion of the Regular or Expeditionary Force.

In this manner the Territorial Force will be brought into closer relations with the Regular Force. The two forces, Regular and Territorial, will each consist of corresponding arms and departments, and a community of interest will be thereby established which cannot exist to the same extent when one of the forces (the Volunteers) is composed mainly of one arm, viz., infantry, without the requisite proportion of other arms and departments.

Important advantages will, it is hoped, result from the institution of the County Associations. These Associations are charged with the raising, maintenance and equipment of the force. They are also charged with the care of Reservists and discharged soldiers, the value of which will be realised by all who understand the recruiting problem. Thus, the civil authorities in the counties will be brought into close connection with all administrative questions arising out of a military organisation. Side by side with the military authorities of the command, who are responsible for command and training, the County Associations will meet and discuss all matters affecting the welfare of the force. The devolution of responsibility upon County Associations must increase local interest in the units which the counties maintain and administer, and local senti-

Home. ments and susceptibilities can be better provided for in this manner than is possible in a system of centralised control.

The work of the County Associations in administering the Territorial Force does not differ materially from the work of administering the Regular Force. It is of the same kind although different in degree. It is interesting in its nature, and will arouse interest in the county. The effect should be to familiarise the civil community with military matters, and to afford them practical experience in dealing with questions of military administration. The importance of this is great. Military organisation has never perhaps been sufficiently studied by the nation in the past, and it is doubtful whether its prominence in modern war is even now adequately appreciated. Clearly, too, a knowledge of military matters is less in a nation free from universal service than in one in which such service is exacted, and consequently public opinion is less instructed.

The best results should accrue from a system which induces a wider knowledge of the Army and of the principles governing its administration, and which employs to a common purpose the broad general knowledge of the civilian and the technical skill of the soldier.

LEAFLET No. 2.

Terms and Conditions of Service in the Territorial Force.

The object of this leaflet is to explain clearly to those who wish to join the Territorial Force, and especially to the existing Volunteer, the precise conditions under which they will serve. Changes have been introduced by the Territorial and Reserve Forces Act to increase efficiency, but the main principle upon which the force is based remains unaltered. Service in the Territorial Force is, as in the existing Volunteer Force, purely voluntary, and the man who joins the Territorial Force has the right of terminating his engagement in time of peace on the conditions explained later. The arrangements which are being made for the Yeomanry are not set out in this leaflet.

A.—Conditions Affecting the Man who Joins after the 31st March, 1908.

Attestation and Enlistment.

A man joining the Territorial Force will be attested and enlisted instead of being enrolled.

Enlistment is more formal and more military than enrolment, and preserves a better record, but the rights of the man remain the same. The notice paper which is given to him and the attestation paper which he signs contain full information of the liability which he undertakes. Every man serving in the Forces of the Crown will thus serve as an enlisted soldier, but in the Territorial Force the enlistment can be cancelled by giving the required notice and paying the required sum.

Term of Enlistment.

The term of enlistment will be four years.

Age of Enlistment.

The age on enlistment for all branches at present will be from 17 to 35 years, instead of to 49 years.

Re-engagement.

Men will, as now, be allowed to re-engage when their term of original enlistment is completed, with the consent of their commanding officer, for

Home. a term of not less than one year and not more than four years, as may be fixed by the County Associations.

Age for Retirement.

The limit of age up to which the rank and file may remain in the force is 40 years, or 45 with special permission, and for sergeants not belonging to the permanent staff, 50 years of age, or, with special permission, 55 years.

Medical Tests, Standards of Height, etc.

Arrangements will be made by the County Associations to examine men on enlistment, as is now done on enrolment.

The convenience of the intending recruit will be consulted, and he will be examined by the medical officer of his Territorial Corps or by an officer of the Royal Army Medical Corps, or by a civil practitioner, as may be most suitable. This examination is in the man's interest, as well as in the interests of the force. The standard will be for home service as at present laid down for Volunteers. The main requirements are a general capacity for marching and shooting, and for this he must have a sound heart and lungs, good eyesight, and be free from rupture.

The Territorial Force will thus consist of men in the prime of life, and even at the cost of numbers it is intended to restrict recruiting to men who can give good and efficient service.

B.—Conditions Affecting the Volunteers until the Provisions of the Territorial Forces Act Become Operative.

Transfer of Service.

Every Volunteer now serving will, subject to the maximum age limit for retirement laid down for the Territorial Force, and to the conditions stated hereafter, have the option—

- a. Of accepting the terms of the Act; or
- b. Of resigning, if he wishes to do so, subject to delivering up his arms, clothing, etc., in accordance with the Volunteer Act, 1863.

A date will be named, probably the 31st March, 1908, before which existing Volunteers will elect whether they accept the new terms.

Terms of Service.

A Volunteer who is permitted to accept the terms of the new Act will sign an attestation—

- a. He may enlist at his option for a period of 1, 2, 3, or 4 years from the date of signing his new attestation.
- b. If he is a Volunteer who has re-engaged, he may enlist in the same branch in the Territorial Force for a period of 1, 2, 3, or 4 years.

No medical examination will be required in either case.

The Territorial Force will consist of all arms and departments. If a Volunteer wishes to leave an arm to which he belongs and join another, he must enlist for the full period in that arm, and he must be medically examined as to his fitness for it. This is necessary in his own interests and to insure his adequate training.

If a Volunteer belongs to a unit, the strength of which is in excess of the authorised establishment, or belongs to a unit which is to be amal-

Home. gamated with another, or which is not required in its present form, he may join any other unit on the term of service stated at (a) or (b) above, provided there is a vacancy for him in the establishment of the unit he wishes to join. The same rule will apply to Volunteers who belong to the Garrison Artillery and who wish to transfer to infantry or to mounted branches of artillery.

From the above it will be seen that the Volunteers will remain as they are now until the 31st March, 1908. Volunteers will elect whether they will join the Territorial Force. If they do so, they can remain in their own arm, and in their own unit, provided the establishment thereof is not exceeded, and it is one of the units selected to form part of the Territorial Force. They may, if they prefer it, and are physically fit, join any other corps in which there are vacancies, subject to Regulation.

In transferring the Volunteer Force to the new Territorial Force, it is desired that existing interests shall be disturbed as little as possible. It is not intended to make any changes that can be avoided, but it is intended to lay firmly the foundations upon which the organisation is to be built. It is recognised that the success of the new force, its initial development, and its efficiency depend upon the Volunteer, and the whole object of the scheme is to increase the military value of the service which he gives to the nation rather than to increase the stringency of the conditions of service.

Clothing.

As regards clothing, the position of the Territorial soldier is practically the same as that of the Volunteer at present. Clothing will in future be supplied by the Associations out of the funds it receives, instead of being supplied by the commanding officer of the unit.

Summary.

From the foregoing it may be seen that in signing the attestation the soldier of the Territorial Force undertakes little more responsibility than the Volunteer.

He enlists for 4 years; he can cancel his engagement, with a maximum 3 months' notice, which can be reduced for good reason; he pays little or no more than at present as a fine. As stated, the existing Volunteer transferring to the Territorial Force can engage for a shorter period if he wishes.

He is liable to a fine if he neglects his training, except on account of sickness or with reasonable excuse. The existing Volunteer is now liable to pay certain sums if he fails to earn his capitation grant.

He is liable to military law during training and exercise; Volunteers who now go to Aldershot and to other Regular training camps, that is, who train with Regulars, are liable to military law during such period of training.

He is liable to be embodied in imminent national danger and great emergency, that is, when the Reserves are called out; so is the Volunteer and so would every man wish to be who has the interests of his country at heart.

He can enlist in any arm or department in which a vacancy exists, and thus has a wider choice of corps than the Volunteer now has. If used to horses he can enlist in a mounted corps; if an electrician or man with a trade, in the Royal Engineers; or, if concerned in civil life with supply or transport, he can enlist in the Army Service Corps.

An officer or soldier of the Territorial Force is not compelled to serve as a peace or parish officer, and is exempt from serving upon a jury.

A field officer is not required to serve in the office of Sheriff.

By command of the Army Council,

E. W. D. WARD.

The War Office,

November, 1907.

German Military Opinion on the Official History of the South African War.—Seldom has public opinion been more misguided than that pronounced in all countries in regard to the events of the late Boer War. The organs of the Press in almost all civilised countries could hardly bestow enough praise on the warlike deeds and organisation of the Boer Army, especially after their first victories, while the British generals and the British soldiers were over-much blamed without the information that might have justified such severe criticism. Meanwhile the published reminiscences of Boer leaders and experiences of many Germans who fought on the Boer side during the war, have enabled us to appraise the Boer Army at its true worth, whereas with the exception of the *Times* History of the War, written by a civilian, there was until now no exhaustive and impartial groundwork whereon to build up a correct appreciation. It is only now that a work is being published which sets forth clearly and in many respects justifies the action of the British forces. This work is called "The Official History of the War in South Africa, 1899-1902," compiled under the direction of H.M. Government by Major-General Sir Frederick Maurice, K.C.B. This indeed is a publication worthy of notice as a scientific history of the war, and which deserves to be appreciated abroad as well as at home, especially in Germany, where the mark of moderate, just criticism was perhaps often overshot. Two volumes have already appeared. The first ends with the description of the unfortunate operations in December, 1899, the second carries us on to the relief of Ladysmith and the victorious march of Lord Roberts to Bloemfontein. Critical enlightenment of these operations is, it would seem, purposely avoided. The History, as that of the Franco-German war by the German General Staff does, gives so clear and exhaustive an account of all the events that it is possible for each reader to form his own judgment of the occurrences. It is only in the description of the actual fighting that here and there critical remarks are interwoven which embody valuable tactical experience. In perusing these we find sound military judgment and pertinent lessons drawn from the faults committed—a proof that the British Government has entrusted this History of the War to men of high soldierly culture, who seem well calculated to influence and to further the military spirit in the Army.

The History, for political reasons, avoids entering upon the events preceding the war. It carries the reader at once to the threshold of the military operations. The exhaustive account of all the circumstances of the case enables us for the first time to form a true picture of the difficulties the English Generals had to encounter, especially at the commencement of hostilities. Hitherto we were unable to understand the entire insufficiency of the British preparation for war. Now we know as a fact that the leaders in England hoped until the very last moment to arrive at a peaceful solution, and hence were unwilling to do

anything to precipitate war. The opinion that was held by many, that war had long been determined on in England, and that only a favourable opportunity to begin it was awaited, was and is an error. Notwithstanding energetic representations in responsible military quarters in London, the reinforcement of the South African garrison was purposely refused by the Government for fear of exciting the animosity of the Boers.

Thus the British generals were placed from the first in an extremely awkward position. Action on a general plan was very difficult. The few troops on the spot were not sufficient for the solution of the military problem, and the reinforcements had to be at once made use of where the need was greatest, and hurried forward to encounter the enemy, without waiting until they could be acclimatised, or learn something of the country. This much lessened their military value, and this is not one of the least of the causes of the marked difference between their achievements and those of their comrades later on in the campaign. The German troops in South-West Africa met with similar experience. In this case the German Marines were taken at once from on board ship without any previous practice and pushed forward into action on account of the threatening situation. The great exertions this caused, after the long inaction necessitated by the sea voyage, combined with the effects of a climate they were uninvolved to, brought on an epidemic of typhoid fever, which rendered this detachment useless for further efforts.

If the British soldier did not in the earlier engagements rise to the height of his fighting capacity, if even catastrophes such as Nicholson's Nek and Stormberg could occur, we may now, after our experiences in South-West Africa, criticise less unfavourably these remarkable occurrences which at the time were too harshly spoken of in the German Press, for we now know of what importance is the seasoning and training of the troops to the climate and country in which they are to fight. It was not until the British troops had habituated themselves to their new surroundings that their real value was shown.

The masterly description given by General Maurice of the fighting for the relief of Ladysmith and on the march to Bloemfontein, shows what self-sacrifice the British soldier is capable of and what warlike qualities he possesses. These qualities were lately again brilliantly displayed in the pursuit of Morenga. The energy and endurance displayed by General French's Cavalry Division in the pursuit of Cronje, the courage of the Highland Brigade, and the death-braving attack of Hannay's Mounted Infantry at Paardeberg; the tenacious struggle of the Sixth Division at Driefontein, and the fearless front of the Q Battery at Sannah's Post, are an eloquent testimony to the energy of the leaders and the devotion of their troops. The German General Staff, in its account of the war,† expressed its appreciation of the qualities displayed on these occasions. In the description of the fighting at Paardeberg the criticism of Lord Kitchener's resolve to bring about a decision by immediate attack is of especial interest to soldiers. While many critics, and among them some military men, have hitherto attributed the great loss incurred to this resolution, which might have been avoided by simply surrounding the Boers and subjecting them to a heavy artillery bombardment, this official History entirely justifies Lord Kitchener's action, for the same reasons as were given in the account by the German General Staff. The situation on the morning of the 18th February, 1900, hinged on an early decision in view of the threatening gathering of Boers in the rear of the British. Lord

† See THE JOURNAL for May, 1904, No. 315, p. 595.

Roberts had warned Lord Kitchener of this in good time.
Home. Lord Kitchener could, moreover, not then know that these Boer Commandoes would be as inactive as they afterwards in fact were.

Heavy losses must be incurred if a vigorous war policy is to be carried out, and decisive military successes are not to be obtained without sacrifice. If the British leadership seemed at times in the actions that followed Paardeberg to shun heavy loss, it was owing to defective organisation, and, above all, to the difficulty of replacing the men. The official account makes all this quite clear to our eyes, and we now understand many circumstances of this war which were hitherto puzzling to us.

Though a final judgment cannot be pronounced on the work before the whole is published, yet we may already venture to assert that both the matter and manner of this History, as evinced by the parts already to hand, are such as to render it worthy to rank high in modern military literature.—*Militär-Wochenblatt*.

Japan. *Japanese and Russian Surgery.*—In his observations on the Russo-Japanese War, Major Charles Lynch, M.D., U.S.A., says:—

"For the First Army complete statistics are available; this, it will be remembered, was always engaged in field and not in siege operations. Its percentage of rifle wounds is given as 84, shell 14, and bayonet 0.9. Differences in classification in different battles, etc., give rise to a very small error in calculating these percentages. In the Third Army, which up to the battle of Mukden was at Port Arthur, and so had only one field fight—that of Mukden—the rifle wounds were 59.44 per cent.; cannon, 19.63; bayonet, 0.59; miscellaneous, 12.13; untraceable, 8.11. Full figures for the Second Army at the battle of Mukden are: Percentage of rifle wounds, 85.83; shell wounds, 13.73; bayonet wounds, 0.45. It is safe to conclude from these figures that, though the rifle has retained its pre-eminence as a wounding weapon in war, shell wounds have notably increased; in the field nearly all the wounds classified as shell wounds were caused by shrapnel. Some wild statements in reference to the frequency of bayonet wounds have been circulated; even so large a percentage as seven of all wounds has been ascribed to the bayonet. As a matter of fact, in the whole war not one per cent. was due to this weapon. The large number of miscellaneous wounds in the Port Arthur army is notable. Some of these were caused by hand grenades, which were used largely there and to a considerable extent in the north in attacks on entrenched positions. All of these grenades were actually thrown by hand in the early part of the war, but later the Japanese made little mortars, some of them of wood, in which a small charge of powder gently lifted a can containing a high explosive, usually Shimose, from 200 to 400 yards, where a frightful explosion would occur.

"The First Army reports 32.03 per cent. of severe wounds, 53.5 per cent. of slight, 14.47 per cent. very slight; the Third Army 26.76 per cent. severe, 69.6 per cent. slight, 3.54 per cent. very slight. The Japanese classify as a severe wound one which so disables the recipient that he must be carried from the field; actually, some very severely wounded men staggered back to the dressing stations alone or with the assistance of less badly wounded companions. The figures in reference to the severity of wounds do not differ practically from the ones which are generally used to calculate the amount of transportation which will be necessary for wounded in battle.

"The total number of wounded in the First Japan. Army was 16,811, the number of killed, 4,789; in the Second Army 10,070 were killed, 38,159 were wounded; and in the Third 19,363 were killed, 76,586 wounded; the proportion of killed to wounded was therefore higher than in any other recent wars. The location of wounds, based on 7,489 non-selected cases in the Second Army, showed the following percentages: Head and neck, 16.08; trunk, 30.31; arms, 25.16; sexual organs, 0.20. The percentage of head wounds is rather higher than that usually found in field fights; this was to be expected, however, as the men were frequently entrenched, so that the head was much exposed relatively. Many cases of multiple wounds were seen.

"The percentage of wounded, according to branch of service with the Second Army, from 4th May, and to include 5th January, for the infantry 36.27 per cent.; engineers, 14.33 per cent.; artillery, 8.44 per cent.; cavalry 6.22 per cent.; sanitary company, 5.57 per cent.; surgeons, etc., 4.66 per cent.; train, 0.51 per cent. The percentage of wounded surgeons and sanitary company is lower in this table than it was for all armies in the whole war; reports from some armies show that their percentage of casualties was between that of the infantry and the artillery. A complete record of medical department casualties is found under medical personnel.

"Japan may be said to be yet in the pre-surgical stage of her development—that is to say, she has not reached a realisation of the beneficent effects of good surgery, and in civil life surgery is a last resort, rather as it was with us in pre-antiseptic days. This has resulted in little specialisation in surgery, and while many men may be found who have done good work in bacteriological pathology abroad, few surgeons with foreign instruction are met.

"Speaking generally, there is no doubt but that the Japanese surgeons were superior to the Russians, even with their deficiencies. What is needed in war is a high general average in surgical skill rather than a few specially skilled surgeons, as conditions are such that wounded must necessarily be treated at widely separated points; that fine surgeons would not find a good field for employment cannot be maintained, however. If the Russians had such surgeons they should certainly have been found in the great hospitals at Port Arthur and Mukden. As a matter of fact, they were not encountered in either place. Russian surgery, as exemplified by presumably as good men as they had at these two towns, was no better than that usually seen at the Japanese hospitals. However, it was quite different from the latter in many respects. The Japanese certainly never tried to gain experience at the possible expense of their patients, but whether this is equally true of the Russians is not so clear. The latter were especially inclined to make long incisions to relieve tension. These were often made without reference to the direction of the muscles, the fibres of which were ruthlessly cut transversely. The worst case of this kind seen must be described. It occurred in a Japanese soldier who had received a bullet wound at Mukden. The bullet entered two inches below the left trochanter, with no wound of exit. The urethra was injured so that there was some hæmorrhage from it, and the patient required catheterisation. The Russian surgeon, presumably to relieve tension, made a deep, vertical, central abdominal incision three inches long, two other incisions four inches in length, parallel with this, and two inches from it, on each side, and two other incisions seven inches from it, one and a half inches above and parallel to Poupart's ligament, on each side.

Whether this manifested recklessness was due to lack of surgical knowledge, is a question, but such practice was so unjustifiable as to be almost criminal.

Japan.

"The Japanese criticise the Russians for their early and radical operations generally. Apparently there was ground for this. Some of the photographs show head wounds were entirely too large, and the Russian surgeons removed bullets from the head and other tissues not infrequently which would much better have been left where they were, as no harm was resulting from their presence. Mechanically, Russian surgical work was somewhat better than Japanese, but they did not equal the latter in surgical cleanliness. The Russians placed their reliance on aseptic rather than antiseptic methods, and their aseptics were not good. While it is believed that the Japanese medical officers always did the best they could for their patients, a little thing showed their thorough army training. This was their classification of their surgical cases, in conversation, and also evidently in thought, as those which were capable of evacuation to the rear and of those which were not so.

"This does not apply to surgery of the eye, for which there is apparently great demand in Japan, and in which a number of physicians specialise and do good work. In general surgery the Japanese invariably adopted the easiest methods mechanically, such as circular amputations, and they, though perhaps the best organisers in the world in many respects, did not organise their operating-room staffs, so that much confusion resulted from lack of specialisation of duties. The surgeons, too, are apparently rather limited in their methods of surgical treatment. For example, iodoform is universally used for all dressings. They believe, it is true, in antiseptic methods rather than aseptic for war surgery, and they are probably absolutely right in this matter of principle, but, they pursue routine methods too closely. Army surgeons in any country are naturally in a great measure dependent on the general surgical teaching of the country in question. This is quite true in Japan, and the reason that army medical officers are not competent surgical practitioners is not because their teaching and experience are inferior to civilian surgeons, but because good surgery has not been imported nor developed in Japan. As a matter of fact, Japanese army medical officers, as a class, are probably much better surgeons than are the civilian doctors of that country, as, with the former, war gives surgical opportunities of relative importance, just as it formerly did with us."—*Army and Navy Journal*.

NAVAL AND MILITARY CALENDAR.

NOVEMBER, 1907.

- 4th (M.) H.M.S. "Devonshire" paid off at Devonport.
- " " XIIth Brigade R.H.A. arrived in India from South Africa in the "Soudan."
- " " 2nd Bn. Leinster Regiment (Royal Canadians) arrived in India from Mauritius in the "Soudan."
- 5th (T.) H.M.S. "Devonshire" recommissioned at Devonport for further service in Second Cruiser Squadron.
- " " H.M.S. "Sappho" commissioned at Chatham.
- 6th (W.) 1st (King's) Dragoon Guards left England for India in the "Assaye."

- 7th (Th.) Launch of H.M.S. "Superb" from the Elswick Works, Newcastle-on-Tyne.
- " " The French Yellow Book on Morocco was issued.
- 11th (M.) T.I.M. the German Emperor and Empress arrived in England.
- 13th (W.) H.M.S. "Sappho" left Sheerness for West Indies.
- " " 2nd Bn. South Staffordshire Regiment left India for South Africa in the "Soudan."
- 16th (Sat.) IVth Brigade R.H.A. left India for England in the "Rewa."
- 20th (W) 3rd (King's Own) Hussars left India for South Africa in R.I.M.S. "Hardinge."
- " " 1st Bn. Suffolk Regiment left England for Malta in the "Dongola."
- 27th (W) 1st Bn. Suffolk Regiment arrived in Malta from England in the "Dongola."
- " " 1st Bn. Lancashire Fusiliers left Malta for India in the "Dongola."
- " " 3rd Bn. Worcestershire Regiment left England for South Africa in the "Braemar Castle."
- 28th (Th.) 1st (King's) Dragoon Guards arrived in India from England in the "Assaye."
- " " 2nd Bn. South Staffordshire Regiment arrived in South Africa from India in the "Soudan."

FOREIGN PERIODICALS.

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15th November.—"A Headless Army: Opinions of some Generals." "Military Science in Athens (Lectures by General Marva): The Siege of Port Arthur" (continued). "Relations between Armament and Tactics"

(continued). "Military Excursions" (continued). "What ought the German Infantry to Know and Understand of War?" (continued). "Mobilisation and Manœuvres carried out in Galicia in the Autumn of 1907" (continued).

Revista Científico-Militar y Biblioteca Militar. Barcelona: 10th November, 1907.—"To take the Place of the Military Schools." "The Attack of Entrenched Positions." "Artillery Automobile Limbers." "New Uniforms for the Austrian Alpine Troops."

25th November.—"Recollections of Germany." "Attack on Entrenched Positions" (continued). "Equipment of the Japanese Soldier." "The Feeding of the German Troops during the Manœuvres." "A Company Cart for the Carriage of Cartridges."

SWITZERLAND.—*Revue Militaire Suisse.* Lausanne: November, 1907.—"Division Manœuvres of the 1st Army Corps." "Another Contribution for the Appreciation of Aiming Apparatus." "Recent Aeronautical Progress."

UNITED STATES.—*Journal of the Military Service Institution.* Governor's Island, N.Y.H.: November-December, 1907.—"The Construction of Heavy Ordnance" (continued). "The Proposed Garrison Ration." "Meaning of Artillery Action." "Transmission of Military Intelligence" (continued). "Essay on Field Artillery." "The Twelfth Infantry in the Civil War." "Improvement of our Cavalry Horse." "Next Step in Machine-Gun Development." "Types and Traditions of the Old Army." "Comment and Criticism." "Translations and Reprints."

Journal of the United States Artillery. Fort Monroe, Va.: September-October, 1907.—"British Torpedo-boat Destroyer 'Eden.'" "Increased Calibers for Sea Coast Guns." "Screw and Wedge Breechblocks." "Screw and Wedge Breech Mechanism." "The Thermit Welding Process." "Professional Notes."

Army and Navy Life. New York: November, 1907.—"A Need which Congress must satisfy." "From the German Capital." "The Lesson of the Campaign in Cuba." "The Inevitable Termination of Peace." "The Illogical Military Staff." "The Japanese Invasion." "On both Sides of a War." "Scraps from an Army Woman's Diary." "When the Tornado came to Camp Columbia."

NOTICES OF BOOKS.

Les Campagnes de 1799. Jourdan en Allemagne et Brune en Hollande.—Par EDOUARD GACHOT. Perrier et Cie. 1906.

Of the two campaigns herein described that of Jourdan is probably the least well known to Englishmen, for although to some extent it was by means of our financial assistance that the Archduke Charles was enabled to bring the campaign to a successful conclusion, the contest itself—so far, at any rate, as the operations of Jourdan were concerned—was practically confined to the Austrians and the French. It must be confessed that Jourdan does not emerge with much distinction from the struggle; it is true that he was much hampered by the Committee sitting in Paris, which had nominated him to the command of the "Army of the Danube," and whose help and countenance were mainly confined to

describing his reverses as victories in the columns of the *Moniteur*; but his great opponent was in similar case, for he too was more or less in the leading strings of the Aulic Council assembled at Vienna. Jourdan was by no means ill-supplied with divisional generals of experience and repute—Lefébvre, Saint-Cyr, Souham, Soult and Ney—but however sound his dispositions may have been before contact with the enemy was established, he appears, once an action was joined, to have merged the general in the mere fighting man, so that far too often reports failed to reach him—as his own orders failed of conveyance to his subordinates—because Jourdan himself was fighting hand to hand with the Austrian infantry in the copses and thickets of the Black Forest. His army was ill-supplied and ill-disciplined, while some of his subordinate leaders were at least passively disloyal, and Jourdan seems hardly to have possessed the necessary strength of character to remedy a state of affairs for which he was perhaps not altogether irresponsible. There can at any rate be no excuse for the manner in which he deserted his army in the field, for the reason that he “ne veut pas assister à une nouvelle défection de l’armée du Danube,” thus leaving behind him a situation of extraordinary difficulty for his successor, Masséna, who probably never did better work for France than in the reorganisation of Jourdan’s battered and demoralised units, and in the holding back of the victorious armies of Austria. A curious side-light on the political savagery of the times is shown in a chapter entitled “Le drame de Rastatt,” wherein we are told, in considerable detail, of the extraordinary and murderous attack upon the plenipotentiaries of the French Republic.

In the account of the campaign of Brune in Holland the English military student will find himself upon more familiar ground, for it is the story of the operations of that unsuccessful British commander in the field who yet made an excellent Commander-in-Chief in Pall Mall. The French accounts of the war, waged on one side by the French and Dutch under Brune, and by the British and Russians, under the Duke of York, on the other, have hitherto been singularly meagre, being confined almost entirely to the work of Jomimi, and M. Gachot has earned the thanks of soldier-students for the fresh light he has been able, from his recent researches in the French military *archives de guerre*, to throw upon the course of events; and it seems that while his account of Brune’s successful campaign is no less painstaking and minute than that wherein he has recorded the failure of the operations of Jourdan, it makes very much the more interesting and the livelier reading of the two. It is perhaps not unnatural that a Frenchman, describing the success of operations conducted by a French commander, should omit any very pointed reference to the inferior character of the troops to which Brune’s men were opposed, for if the British and their Allies were inadequately commanded, it must in justice be admitted that the troops led by Frederick, Duke of York, were hardly representative of the trained soldiers of their nations. Readers of Mr. Fortescue’s “History of the British Army” will not need to be reminded of the hasty, ill-considered methods by which this expeditionary force was thrown together by Dundas, and will only wonder that the regiments, composed of young militia-bounty men, strange to their officers and unknown to one another, performed as creditably as they did in an expedition foredoomed to failure. It is pleasant to read once more in M. Gachot’s pages, as in many other accounts of the constantly recurring struggles between the British and the French, of the chivalrous feeling which invariably appears to have animated one side towards the other; of how the soldiers of France and of England were enemies only on the field of battle; of the punctilious observance by both, not only of the rules, but of the courtesies of war; of Brune’s considerate treatment of the sick and

wounded whom with every confidence we left behind us in his hands, and of his whole-hearted humanity towards the women and children of our soldiers, who in those days accompanied our troops to war and were perforce left behind us when disaster overtook our leaders and retreat became inevitable. The British accounts of this unfortunate campaign are tolerably numerous, though some of them are inaccurate and confused, and this careful narrative of the operations from the French point of view should help to complete a story in which we, as Englishmen, take much interest, though not perhaps any inordinate pride.

Cavalry Studies: Strategic and Tactical. By Major-General D. HAIG, C.V.O., C.B. With Maps and Sketches. 8vo. London, 1907. Rees. 8s. 6d.

Bearing in mind the source from which this book emanates, as well as its contents, the work occupies a somewhat unique position in British Military Literature. It is an enthusiastic proclamation of the Cavalry "Faith," supported by references to the records of wars of the past, and illustrated by application to imaginary situations of the present; and the prophet is a General Officer of Cavalry, who has had practical experience of war, has been for five years Inspector-General of the Army in India, and who now, when putting forth in print his teaching, is one of the Directors of the General Staff at the War Office. Among the superior staff at the Horse Guards during the half century prior to the South African War, the lack of knowledge and the absence of appreciation of the use and value of the Cavalry Arm was notorious. In fact, it was not until General Sir George Luck became Inspector-General of Cavalry at home that the representative of the arm had any influence at all. But although times are altogether changed, and with Sir John French and Major-General Baden-Powell holding high positions in the military hierarchy, there is no fear of the arm falling to its previous low estate, there is none the less the necessity for the impressing on the Army generally the vital importance of the part that cavalry have to play in war, for it is very doubtful whether the other arms really "believe" in cavalry. Undoubtedly, one of the principal causes of the incredulity is that "seeing is believing"; and that whilst at manœuvres and tactical exercises in peace time, fairly representative shows can be given of the actual and successful working of artillery, infantry and sappers in war, it is almost impossible to produce a similar representation of cavalry work, especially of that all important portion of it, "Strategic Exploration." Among our Military literature there are in existence a few small works on Cavalry, but excellent as they may be, they are deficient in the weight derived from personal knowledge and personal experience of war on the part of the author; and it is the possession of this knowledge and experience that increases so greatly the practical value of the book written by Major-General Douglas Haig. A sort of previous edition of the book has already appeared in India, in the form of the Reports (with appendices) of the Five Cavalry Rides carried out in India by the General during the years 1903-5. Mastering the contents of those Reports is somewhat an exhausting labour; whereas in their new shape they are both thoroughly readable and most interesting. Equally profitable is the study of General Haig's own views of the working of his arm, of the opinions of the authorities whom he quotes in confirmation of his views, of the historical instances he uses for illustration, and of the problems in which he applies principles to practice. It may be added that the book is furnished with a very large number of well-executed maps and sketches.

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- Instruction in Bayonet Fighting.* Pamphlet. 12mo. (Presented.) (Harrison & Sons.) London, 1907.
- Royal Warrant for the Pay, Appointment, Promotion, and Non-Effective Pay of the Army.* 8vo. 1s. (Presented.) (Harrison & Sons.) London, 1907.
- Reports of Military Observers Attached to the Armies in Manchuria during the Russo-Japanese War.* Compiled in the Office of the Chief of the Staff, War Department, United States. Parts I., II., III., IV., and V., and 1 vol. maps. 8vo. (Presented.) (Government Printing Office.) Washington, 1906.
- In the Footsteps of Marco Polo, being the Account of a Journey Overland from Simla to Peking.* By Major C. D. BRUCE. 8vo. 21s. (William Blackwood & Sons.) London, 1907.
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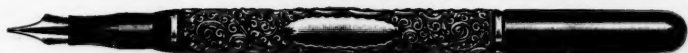
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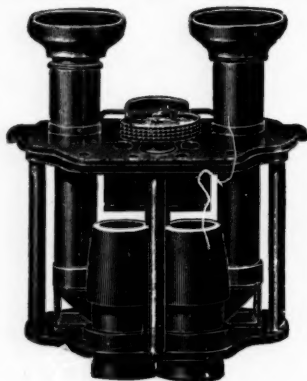
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